

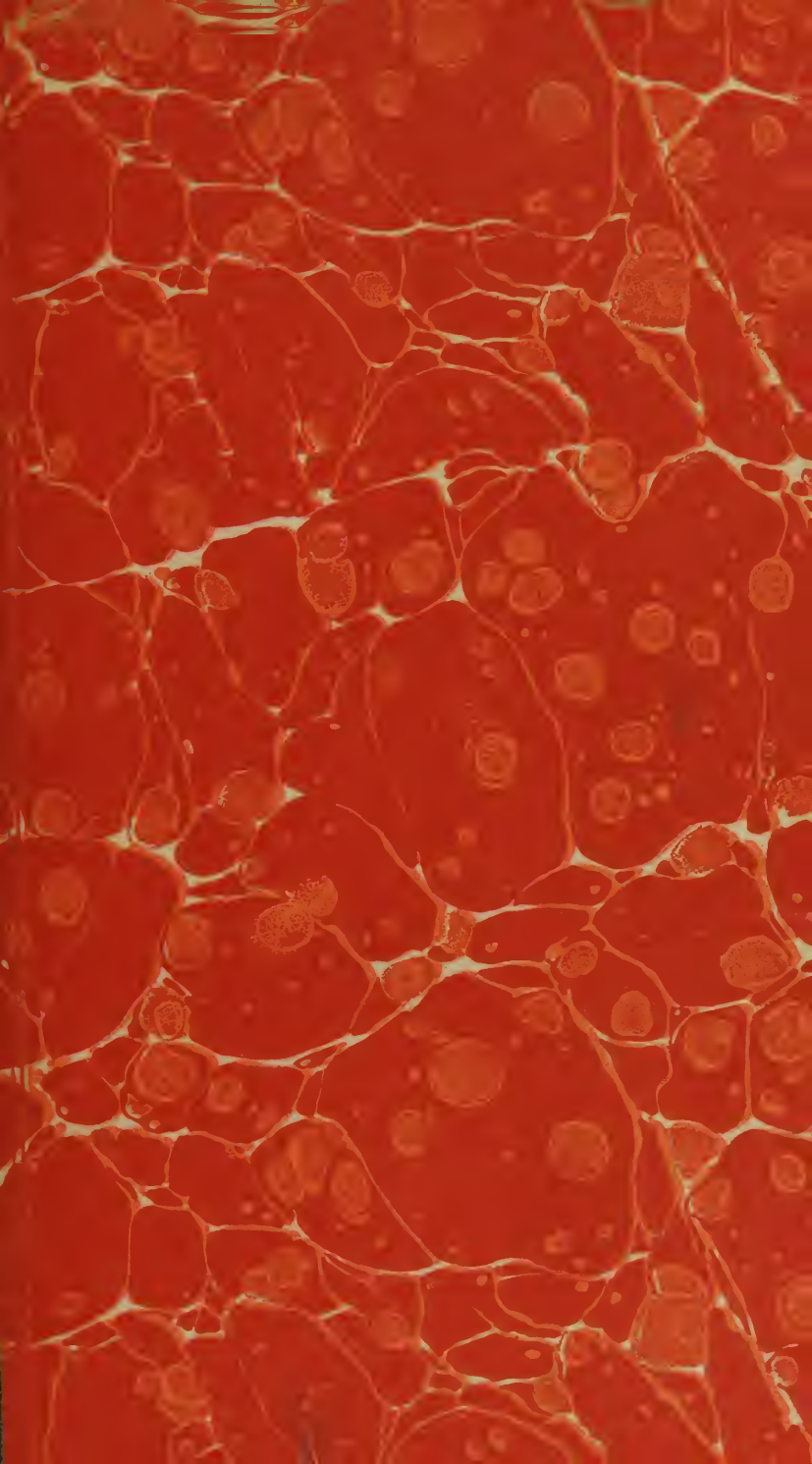
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1844
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COLLECTIONS

FOR

AN ESSAY

TOWARDS A

MATERIA MEDICA

OF THE

UNITED-STATES.

• BY BENJAMIN SMITH BARTON, M. D.

PROFESSOR OF MATERIA MEDICA, NATURAL HISTORY, AND BOTANY,
IN THE UNIVERSITY OF PENNSYLVANIA.

PART FIRST.

THE THIRD EDITION, WITH ADDITIONS.

“ ALIT impetum persuasio non in sterili me campo laborare, dum vires
“ ad illam scientiam intendo, quae praxeos medicae ALTER OCVLVS est.”

4.28196
J. A. MURRAY.

PHILADELPHIA:

PRINTED FOR EDWARD EARLE AND CO.

Fry and Kammerer, Printers.

1810

District of Pennsylvania, to wit :

Se¹. BE IT REMEMBERED, That on the twenty-fourth day of
December, in the thirty fifth year of the Independence of the
United-States of America, A. D. 1810, Edward Earle and Co. of
the said district, have deposited in this office, the title of a book the right
whereof they claim as proprietors, in the words following, to wit:

Collections for an Essay towards a *Materia Medica* of the United-States.
By Benjamin Smith Barton, M. D. Professor of *Materia Medica*, Natural
History, and Botany, in the University of Pennsylvania. Part First.
The Third Edition with Additions.

“ Alit impetum persuasio non in sterili me campo laborare, dum vires
“ ad illam scientiam intendo, quæ praxeos medicæ alter oculus est.”

J. A. MURRAY.

In conformity to the act of the congress of the United States, intituled, “An
act for the encouragement of learning by securing the copies of maps, charts,
and books, to the authors and proprietors of such copies during the times
therein mentioned.” And also to the act, entitled “ An act supplementary
to an act, entitled, “ An act for the encouragement of learning, by securing
the copies of maps, charts, and books, to the authors and proprietors of such
copies during the time therein mentioned,” and extending the benefits
thereof to the arts of designing, engraving, and etching historical and other
prints.”

D. CALDWELL,
Clerk of the District of Pennsylvania.

TO
THE STUDENTS OF MEDICINE
IN THE
UNIVERSITY OF PENNSYLVANIA,

The following pages, which are intended to enlarge the stock of our knowledge concerning the **MEDICINAE** **PROPERTIES** of the Indigenous Vegetables of the United-States, are very respectfully inscribed by their friend and preceptor,

BENJAMIN SMITH BARTON.

Philadelphia, December 12th, 1810.



PREFACE.

TO THE SECOND EDITION.

MY *Collections for an Essay towards a Materia Medica of the United-States* have been favourably received by the public. I ought, perhaps, to mention this circumstance with some degree of surprise; for when I published the work, I was not ignorant how extremely superficial and imperfect it was. With all its faults, however, the “honest trifle” has served some useful purposes. It has called the attention of some of my countrymen to the study of the nature and properties of the indigenous vegetables of the United-States: in particular, in the hands of the student of medicine, it has been useful as a guide (always feeble, and sometimes illusory), in conducting him through the extensive wilderness of our riches.

A NEW edition of the “Collections” has been called for. I might have satisfied the desires of a few, had I consented to republish the work, in its original form. By doing this, I might, also, have consulted my own ease and convenience, distracted as I have been by sickness, or engaged in pursuits, which required more steady and laborious attention. But I should not have satisfied myself. As I saw the errors and imperfections of the work, it became my duty to do *somewhat* towards re-

medying them. Besides, it has always appeared to me, that an author has but little claim upon the attention and the favours of the public, unless he renders the second more perfect than the former editions of his works. I determined to reprint the work, in a more enlarged and improved state. But I did not think it would be just or delicate to change the title of the work. The facts and observations which it contains are thrown together with too little regard to method, to give it a claim to the title of an *ESSAY*.

It is not difficult to discover in what respects the present work differs from the former "*Collections*." I have, indeed, reprinted the original Discourse, delivered before the Medical Society, in every *essential* respect a copy of the former work. The only alterations which I have made are too trivial to be particularly noticed. Indeed, the reader of the two editions would hardly be able to discover the difference. I hope, however, that I have increased the value of the discourse, by the addition of a number of notes, at the bottom of the page. I have also added an Appendix, which contains, besides almost all the remarks contained in the appendix of the former edition, a considerable portion of matter, some of it chiefly of a practical nature, which had no place in the original work.

I HAVE entitled this little volume "*Part First*," because it is my intention to publish at least one part more, relative to other indigenous medicinal productions of the United-States. For such an additional volume, I am already in possession of sufficient materials. But the very imperfect state of my health renders it uncertain, when the Second Part will appear. I shall endeavour to

give it to the public sometime in the course of the ensuing year, or early in the spring of 1803. Should it never appear, the loss (save by the student in pursuit of subjects for inquiry, and in want of a guide somewhat more experienced than himself) will be but little felt. The present publication, meanwhile, may be considered as a complete or distinct work, in itself.

Philadelphia, December 2d, 1801.

POSTSCRIPT.

WITH the view to extend the knowledge of those indigenous vegetables of the United-States, which are possessed of useful medical powers, I have it in contemplation to publish a series of engravings, of the principal medicinal vegetables of our country. When the whole of this scheme will be accomplished, it is difficult to say. But I think it may not be amiss to give, in this place, a general idea of the work which I meditate.

OF the native North-American vegetables, which are worthy the attention of physicians, some are entirely new, and have never been figured by any writer: others have been inaccurately or imperfectly figured; whilst of some correct and elegant plates have already been given to the public. It is unnecessary to say, that of those vegetables which have not been figured at all, or which have been but badly figured, the public ought

to be furnished with just and elegant representations. Such it is my intention to publish. But it is even desirable that the American physician should possess a work, which shall bring together, into one view, the representations of the principal valuable native plants, as well those which have as those which have not been well engraved. My scheme, accordingly, comprehends both descriptions of our indigenous vegetables. In the earlier numbers of the plates, however, my attention will be particularly directed to the latter class of plants.

I DESIGN to publish the work in *Decades*, or separate parts; each decade, as the name implies, to contain ten plates. Each plate shall be accompanied with a full description of the plant, in Latin and in English, and shall contain references to the principal authors who have mentioned it. But of the *medical* properties of the plants nothing minute or particular will be said, as the work is solely intended to illustrate the history of those vegetables of which mention is made in these *Collections*, or in the subsequent parts of them, which I design to publish. Even, however, to the botanist, who is careless of the *American Materia Medica*, the plates will be useful.

THE plates shall be engraved from original drawings, taken by able artists from the living plants. At present, it is my intention to publish them in a quarto form, nearly of the size of the plates in Dr. Woodville's *Medical Botany*. The plates of some copies of the work shall be coloured.

THE first and second decades of the work will contain engravings of some of the following medicinal ve-

getables of the United-States; the greater part of which are more or less noticed in the present volume of *Collections*. *Zea Mays*, *Zizania aquatica*, *Geranium maculatum*, *Heuchera Americana*, *Arbutus Uva ursi*, *Comptonia asplenifolia*, *Prunus Virginiana*, *Diospyros Virginiana*, *Myrica cerifera*, *Cornus florida*, *Cornus sericea*, *Magnolia glauca*, *Magnolia acuminata*, *Liriodendron Tulipifera*, *Aristolochia Serpentaria*, *Aristolochia siphon*, *Chironia angularis*, *Hydrastis Canadensis*, *Populus balsamifera*, *Liquidambar Styraciflua*, *Datura Stramonium*, *Cicuta maculata*, *Rhododendron maximum*, *Kalmia latifolia*, *Gaultheria procumbens*, *Laurus Sassafras*, *Laurus Benzoin*, *Laurus Caroliniensis*, *Eryngium aquaticum*, *Arum triphyllum*, *Dracontium fœtidum*, *Rhus radicans*, *Rhus Vernix*, *Rhus Toxicodendron*, *Polygala Senega*, *Polygala sanguinea*, *Zanthoxylum fraxinifolium*, *Zanthoxylum Clava Herculis*, *Euphorbia Ipecacuanha*, *Spiræa trifoliata*, *Spiræa opulifolia*, *Asarum Canadense*, *Eupatorium perfoliatum*, *Sanguinaria Canadensis*, *Triosteum perfoliatum*, *Asclepias decumbens*, *Convolvulus panduratus*, *Podophyllum peltatum*, *Cassia Marilandica*, *Juglans cineria*, *Lobelia siphilitica*, *Lobelia inflata*, *Serratula spicata*, *Ilex vomitoria*, *Spigelia Marilandica*, *Chenopodium anthelminticum*, *Helleborus fœtidus*, *Galega Virginiana*, *Cleome dodecandra*? *Silene Virginica*, and *Melia Azedarach**.

* This last is the only foreign vegetable in the whole list. The *Zea Mays* and the *Zizania aquatica* are the only two vegetables that are not medicinal, in the strict sense of the word.

PREFACE*.

I HOPE the following pages will be received as an earnest of my desire to extend our knowledge of the medical properties of the indigenous vegetables of the United-States. I do not expect to acquire any reputation by the publication. Perhaps, in making this assertion, I shall not be doubted, when I confess that in every thing which I have hitherto published, I have had reputation in view. If I have not acquired it, I have borne the disappointment with tranquil indifference.

THE readers of these *Collections* (for every thing that is written and published solicits some readers) will form different opinions about my medical faith. Some of them will think I have too much; and others that I have not enough. I certainly do not repose implicit confidence in the half of what is said concerning the powers of medicines. Accordingly, I have not given a place, in these pages, to many of our vegetables, which have been praised as specifics for the cure of diseases; in particular, as specifics against the bites of venomous serpents. But, on the other hand, it will be asked, whether I mean that all the different vegetables which I have mentioned, should have a place in the

* To the First Edition.

materia medica of physicians? I answer, No. BUT HOW ARE WE TO KNOW WHAT PLANTS ARE MOST PROPER FOR THE PURPOSES OF MEDICINE, UNTIL WE SHALL HAVE EXAMINED THE PROPERTIES OF A GREAT BODY OF VEGETABLES? The *Digitalis* is now thought one of the most important of the diuretic medicines: but, perhaps, future inquiries will discover a diuretic, which shall, in a great measure, supersede the frequent use of this active plant. I WISH TO TURN THE ATTENTION OF OUR PHYSICIANS TO AN INVESTIGATION OF THE PROPERTIES OF THEIR NATIVE PRODUCTIONS. When it is considered how little has hitherto been done in this way, every attempt (mine is an humble one) should be candidly received. I do not mean that its faults should not be pointed out.

THE arrangement of the articles which I have mentioned is by no means faultless: on the contrary, it is liable to many objections. I should not have followed this arrangement, had I been considering *all* the articles of the materia medica. I shall give a sketch of my ideas of a method of the science, in my strictures on the arrangement of the learned and elegant author of the *Botanic Garden*, a poem which unites the fire of Lucretius with the taste of Virgil, and a learning unequalled by that of Camoens or of Milton.

I THINK it but candid to confess, that since reading this address to the Medical Society, I have made some alterations in it. These alterations, however, are very inconsiderable. In general, even the very style and faults of each phrase are preserved, for I had not time to alter or correct much. I have left out the concluding part of the address, relative to the establishment of

A MEDICAL LIBRARY: not that I doubt the ability of the society to form a library of its own. The notes contained in the Appendix were not read to the society.

WHATEVER may be the reception of this essay by the public, whether favourable or unfavourable, I shall pursue my inquiries concerning the nature and properties of the natural productions of my native country. I shall pursue them, because there is at least a possibility that they may ultimately tend to something useful: and because I have the experience of several years to teach me, that the cultivation of science is the extension of my happiness.



PREFACE,
TO THE THIRD EDITION.

A THIRD edition of these *Collections* being called for, I could not consent to reprint the work precisely in the same state in which it has already appeared before the public. But the want of leisure has prevented me from making all those additions to the work, for which I possess ample materials. These additions, however, will be given in a *third* part, which I propose to publish in the course of the ensuing autumn, and which, it is probable, will close these sketches of an AMERICAN MATERIA MEDICA, under their present title of *Collections for an Essay*, &c.

BUT although I have not been able to accomplish my wish of rendering this edition of the first part of the *Collections* much more complete than either of the former editions, the little work nevertheless now appears before the public somewhat improved and enlarged. I even flatter myself that, the mass of the whole work considered, the additions will not be deemed inconsiderable or unimportant.

I HAVE not relinquished my scheme of publishing a collection of plates, with descriptions, of the most important medicinal vegetables of the United-States. Se-

veral of these plates are already prepared, and others are *now* in the hands of the engravers. If my life be spared, the first decade of the work will make its appearance in the course of the ensuing summer. The plates will be found accurate and well engraved: the descriptions ample, and I hope correct.

Philadelphia, December 12th, 1810.

UNIVERSITY OF PENNSYLVANIA.

The Lectures on MATERIA MEDICA (by Professor Barton) commence annually, in the first week of November, and continue for four entire months. The Professor delivers at least four lectures each week, exclusively of his course on NATURAL HISTORY.

COLLECTIONS
FOR
AN ESSAY
TOWARDS A
MATERIA MEDICA
OF THE
UNITED-STATES.

READ BEFORE THE PHILADELPHIA MEDICAL SOCIETY,
ON THE TWENTY-FIRST OF FEBRUARY, 1798.

By BENJAMIN SMITH BARTON, M. D.
ONE OF THE HONORARY MEMBERS OF THE SOCIETY.

“Sunt Simplicia desumpta e triplici Naturæ Regno: e Lapideo, Vegetabili et Animal; heic VEGETABILIA tantum depromsi, quæ maximam
“constituunt Materiæ Medicæ partem, alio tempori reservans cætera.”

LINNÆUS

FIDEM NON ABSTULIT ERROR.

“ Medicus NOTITIA PLANTÆ destitutus, de viribus ejusdem
“ nunquam juste judicavit.”

LINNÆUS.

COLLECTIONS, &c.

GENTLEMEN,

WE have assembled together to celebrate the anniversary of our foundation. It is an occasion which ought to give pleasure to us all. We have met, however, for the difficult purpose of mingling science with pleasure. This difficulty falls peculiarly upon me. By your vote, I have been called upon to deliver the annual discourse. I accepted of the appointment cheerfully, because I was anxious to demonstrate my attachment to the Society, of which I had the honour to be a member at a very early period of my life; a Society in which I first imbibed my love of the different sciences which constitute the great fabric of medicine.

BUT if I accepted of the appointment with pleasure, I do not address you with confidence. I have found it difficult to select a subject for your entertainment. I, at one time, contemplated a comparative view of the different theories which have prevailed in medicine, in the present century. But I soon found this subject too extensive for our purpose: besides, in the investigation of this view, I should have been obliged to speak with a

freedom, which might not have given pleasure to every one of us. Men are often attached to theories, as parents are attached to their children.

AFTER some difficulty, I have selected a subject. It is *An Essay towards a Materia Medica of the United States*; or, if you please, An Inquiry what indigenous vegetables of our country may be used, with advantage, in the treatment of diseases. This, you will immediately perceive, is a task both extensive and difficult. But it is an important one. I shall not, perhaps, perform a duty altogether unacceptable to you, if I furnish you with a few facts not generally known to you before. This is all I aim at.

MINE is not the first attempt of this kind. Besides the paper entitled *Specifica Canadensium**, Dr. Schoepf, of Erlangen in Germany, has favoured us with a specimen of such a work, under the title of *Materia Medica Americana potissimum Regni Vegetabilis*. This work was printed in 1787. The author arranges the articles according to the sexual system of Linnæus. This, though an objection, is not the greatest. He has given us nothing from his own experience. He ascribes active powers to plants which are nearly inert, and appears to me to be, in some measure, governed by the old notion of *Signatures*: one of the tyrants of the ancient schools. He discovers none of that infidelity, or, if you please, scepticism, which ought ever to be attached to physicians: I mean not an infidelity relative to religion; but an unwillingness to acquiesce, without good proofs, in the truth of every tale concerning the powers of medicines. This pliant, this credulous disposition, has been

* See *Amœnitates Academicae*. Vol. iv. Dissertatio lxxii.

one of the causes which have obstructed the regular march of medical science. But as the effort of Schoepf is the best of the kind, so we ought to tread lightly on his work. He is at least a man of learning; and learning should always claim indulgence from the lovers and cultivators of science.

I AM far from supposing that it is in my power, especially on this occasion, to supply all the defects of Schoepf's book. It would be easy to point out its faults. I aim at a rude sketch of our *Materia Medica*. It is so extremely unfinished, that I have no objection to its being called by any inferior name. I confine myself entirely to vegetables.

MATERIA ALIMENTARIA.

YOU are all acquainted with the great general division of the *Materia Medica* into two parts: that which relates to the aliments, or *nutrientia*, of mankind, and the medical part, more strictly so called. Each of these is highly important; but I mean, in this address, to confine myself almost entirely to the latter branch. Yet the former should claim some of our attention. Much may be expected from a country which has blessed us with the maize, the potatoe, &c. I could readily furnish you with a long list of the indigenous *nutrientia* of this country; but such a list would be very uninteresting. On this subject, however, an useful work might be written. He who shall undertake to examine the subject extensively will find, that Providence has, in the gift of esculent vegetables, been as liberal to the countries of the United-

States, as to any other countries of the world, of equal extent.

UNDER this head of the nutrientia, I shall content myself with mentioning two native articles, which deserve the attention of physicians and others. Perhaps, they may even supersede, on many occasions, the use of some other articles, which are purchased at a pretty dear rate.

THERE grows upon the river Mobile a species of Palm, which is but little known to naturalists, but which promises to be an important article of food to man. It has no stalk or stem above ground. The leaves spread regularly all round, and when fully expanded are flabelliform. In the centre of these leaves, is produced the receptacle of the fruit, which is of the form and size of a common sugar-loaf. This receptacle consists of a vast number of drupes, or berries, of the size and shape of common plumbs: each is covered with a fibrous, farinaceous, pulpy coating, of considerable thickness. This substance is said to resemble manna in texture, colour and taste; or, perhaps, it still more resembles moist brown sugar, with particles of loaf-sugar mixt with it. It is a most delicious and nourishing food, and is diligently sought after in the places where it grows. Upon first tasting it, it is somewhat bitter and pungent*.

THE large tuberous roots of the Smilax China afford our southern Indians a nourishing food. The fresh roots are well macerated in wooden mortars. The mass is then put into vessels nearly filled with clear water, where it is well mixed with paddles. It is decanted off into other

* From the information of Mr. William Bartram. MS. *penes me*. Vol. i.

vessels, where it is left to settle, and after the subsidence is completed, the water is cast off, leaving the farinaceous substance at the bottom. When this is taken out and dried, it is an impalpable powder of a reddish colour. Mixed with boiling water, it becomes a beautiful jelly, which, when sweetened with honey or sugar, affords a most nourishing and pleasant food for children or aged people. The Indians sometimes use it mixed with fine corn-flour, and fried in fresh bear's oil*.

THE chemical history of the Maize, or Indian corn, the blessing of our country, deserves to be farther investigated. Its importance as an article of diet is sufficiently established by the experience of whole nations.

MATERIA MEDICA.

I AM not very anxious, on this occasion, about my division of the materia medica. I have attempted, in my lectures, to make some improvements upon the arrangement of Dr. Cullen; and, if I live, I hope to publish, in a few months, my strictures on the late arrangement of the ingenious Dr. Darwin. At present, in possession of only a small collection of original facts, immediately relative to the materia medica of the United-States, I shall content myself with disposing of these facts under the nine following heads, viz. I. ASTRINGENTS; II. TONICS; III. STIMULANTS; IV. ERRHINES; V. SIALAGOGA, OR SALIVATING MEDICINES; VI. EMETICS; VII. CATHARTICS; VIII. DIURETICS; IX. ANTHEL-MINTICS.

* From the information of Mr. William Bartram. MS. *penes me.* Vol 1

SECTION I. ASTRINGENTS.

I THINK it proper, in the present state of our knowledge of medicines, to give place to a class of ASTRINGENTS. There is the more propriety for the adoption of such a class, because we see more readily, than with respect to many other medicines, their direct mode of operation. Our vegetable astringents, I mean the purer and more unmixed astringents, are numerous. The barks of all our oaks are of this kind. But I may here particularly mention three or four native astringents, which seem to be more especially entitled to your attention.

THE first is the *Geranium maculatum*, or Spotted Geranium*, which grows very plentifully about this city: it flowers in the spring. The root is used: this boiled in milk has been found an excellent medicine in the cholera of children. It is not necessary to be very nice about the dose. I imagine it would also prove useful in old diarrhoeas, where the kino, and other astringents are exhibited. If nephritis, of certain kinds, be relieved by astringents, this geranium would seem entitled to attention, not merely because it is a powerful astringent, but because a species of the same genus, the *Geranium robertianum*, or Herb-Robert, has been employed, with advantage, in this distressing complaint†.

* In the county of Lancaster, and probably in other parts of Pennsylvania and the United-States, this plant is known by the English name of "Crow-foot." It is hardly necessary to say, that this name is improperly applied to this or any other species of the family of *Geranium*: for it has, long since, been appropriated to the different species of the genus *Ranunculus*. The name of Crow-foot is also bestowed, in some parts of Pennsylvania, upon a species of *Geum*, or Bennet, the *Geum rivale*, or Red Water-Avens.

† The *Geranium robertianum* is a native of various parts of North-America.

THE *Heuchera Americana* is the next astringent. This is sometimes called American Sanicle. It is more commonly called Alum-root. The root is a very intense astringent. It is the basis of a powder, which has lately acquired some reputation in the cure of cancer. I suppose all its virtue, in this case, depends upon its astringency. I may here observe, that the disease of cancer is not confined to civilized nations. It is known among our Indians. I am informed that the Cheerake cure it with a plant, which is thought to be the *Hydrastis Canadensis*, one of our fine native dyes. I do not believe that the *Heuchera* has cured genuine cancer: but it seems certain, that it has proved very beneficial in some obstinate ulcers, which have been mistaken for cancer. In such cases, the astringent medicines are too much neglected.

THE *Actæa racemosa*, or Black Snake-root, is also a valuable medicine. It is sometimes called Squaw-root*, I suppose from its having been used as a medicine by our Indians. The root of this plant is astringent. In a putrid sore-throat, which prevailed in Jersey, many years ago, a strong decoction of the roots was used, with great benefit, as a gargle. Our Indians set an high value on it. A decoction of it cures the itch. In North-Carolina, it has been found useful, as a drench, in the disease of cattle, called the murrain.

THE *Uva Ursi*† is considerably astringent. Yet I suspect that it does not operate entirely by virtue of its astringent quality. This plant, from my own experience, I can recommend to you, as a most valuable medi-

* It is also called Rich-weed, and Rattle-weed.

† *Arbutus Uva ursi* of Linnæus.

cine. It should be in the hands of every physician. I have used it, with advantage, in old gonorrhoea. But its great virtue is that of a medicine in nephritis. I am inclined to think, that it is peculiarly adapted to cases of what I call nephritis podagrica, or nephritis depending upon gout. This is one of the plants which are common to the old and to the new world. It grows plentifully in Canada, New-York, New-Jersey, &c. Schoepf says, the Indians mix the leaves with tobacco*.

THE Liquidambar asplenifolium† of Linnæus is well known by the name of Sweet-Fern. It has often been found useful in diarrhoea. Other virtues have been ascribed to it‡.

SECTION II. TONICS.

I BELIEVE all the astringent medicines are more or less TONIC. But there are a good many tonics which are not astringent. There is, certainly, some propriety in considering the astringents and tonics under two distinct heads, as Dr. Cullen has done. But, perhaps, the tonics should only form one section of the great class of stimulants. Certain it is, that many of the tonic medicines are considerably stimulant.

THE class of tonics is extremely interesting to physicians. It embraces some of the most valuable medi-

* Materia Medica Americana, &c. p. 68.

† Comptonia asplenifolia of Aiton.

‡ See Schoepf's Materia Medica, &c. p. 142.

cines with which we are acquainted, such as the Peruvian bark, the extensive tribe of bitter medicines, as the Gentians, &c. The natural infirmities of mankind, and perhaps especially the vices to which civilized nations are so propense, will always render the tonics most necessary implements in the hands of physicians.

OUR woods possess several medicines which, I am inclined to think, might be used, with advantage, as substitutes for the Peruvian bark. Perhaps, most of our Oaks, which are, in general, different from the oaks of the old world, are of this kind. Sufficient trials have not been made with them; at least *internally* used. *Externally*, some of them have been employed, with advantage. I have used the bark of the Spanish oak* in gangrene, and I had every reason to think it was, in this case, equal in power to the best Peruvian bark. The bark of the *Prunus Virginiana*, or Wild-Cherry-tree, has been used in intermittent fevers, and found useful. This is a very common tree. Its leaves are poisonous to certain animals, as calves. Even the berries intoxicate different kinds of birds. The barks of the Common Sassafras (*Laurus Sassafras*), and Persimmon (*Diospyros Virginiana*) have likewise been found useful in intermittents. In the year 1793, I used the bark of the last of these vegetables in an ulcerous sore-throat†. Our Willows have not been attentively examined. We have several native species, and I believe they possess nearly the same properties which have been ascribed to the willows of Europe‡, by Stone, Haller, and other writers. The Dog-

* *Quereus rubra montana* of Marshall. See his *Arbustum Americanum: the American Grove*, &c. p. 123. Philadelphia: 1785.

† Dr. Woodhouse has favoured us with some interesting information concerning the Persimmon. See his *Inaugural Dissertation*. Philadelphia: 1792

‡ Particularly the *Salix alba*, *Salix pentandra*, *Salix latifolia*, &c

wood is a genus which seems well worthy of attention. Of this, the *Cornus* of the botanists, there are several species in North-America. The most common is the *Cornus florida*, or Common Dogwood*. I find this in every part of the United-States. It is one of our most beautiful shrubs. It flowers early in the spring, and with so much regularity, that some of our southern tribes were accustomed to name the spring-season from its flowering. The bark is considerably astringent. It has long been employed in intermittent fevers. A decoction of it has also been employed, and found very useful, in a malignant fever, called the yellow-water, Canada-distemper, &c., which, within the last eight years, has carried off great numbers of the horses in the United-States. The ripe fruit, or berries, infused in spirit or brandy, make an agreeable bitter. Our Indians employ an infusion of the flowers in intermittents. The same infusion has been much recommended by some in flatulent cholic. I have used it as a tea.

THE *Cornus sericea*, another species, is called Red-Willow and Rose-Willow; which are very improper names. The bark of this is often mixed with tobacco, and smoked by the savages. It has been found but little inferior to the common pale Peruvian bark, in intermittent fevers. This species grows in wet places, on the sides of rivers, creeks, &c. and flowers in August and September. I know nothing of the medical properties of the other native species of this genus; viz. *Cornus Canadensis*, *Cornus circinata*, &c.

MANY years ago, Zannichelli, and of late, Cusson and other writers, recommended the bark of the *Æscu-*

* Dogwood is the most common American name of this species. In some of the New-England States, it is known by the name of Box-wood.

lus *Hippocastanum*, or Common Horse-Chesnut, as a substitute for the Peruvian bark. This *Æsculus* is not a native of America, though it thrives very well in the open ground of Pennsylvania, &c. But we have at least two native species of the same genus within the limits of the United-States*. Whether the barks of these possess the properties which have been ascribed to the *Hippocastanum*, I do not know. They deserve to be examined.

I MUST not omit to mention, under this head, the *Magnolias*. Of this fine genus, we have at least six species, viz. the *Magnolia glauca*, the *acuminata*, the *tripetala*, the *grandiflora*, the *auriculata*, and the *Fraseri*†. I believe they all possess nearly one general assemblage of properties; but of this I am not quite certain. The species that is best known to me is the *glauca*, commonly called *Magnolia*, *Beaver-tree*, and *Swamp-Sassafras*. The bark of this is an agreeable aromatic, tonic, bitter medicine. It has been used in intermittent fevers. The flowers have a powerful, and to most persons an agreeable, smell. It is an emanation which must be considered as a potent stimulant, or incitant. I am well acquainted with a physician in whom the newly-expanded flower evidently increased the paroxysm of a fever, which came on every afternoon; and also increased the pain of inflammatory gout. This is an interesting fact. In Virginia, a spirituous tincture of the cones, or seed-vessels, of the *Magnolia acuminata*, which is commonly called *Cucumber-tree*, has been used, and we are told very advantageously, in

* *Æsculus Pavia* of Linnaeus, and *Æsculus flava* of Aiton.

† Perhaps, the *Magnolia auriculata* of Bartram and the *Magnolia Fraseri* of Walter are merely varieties of the same species.

rheumatic complaints*. The bark of the root of the *Magnolia grandiflora*, sometimes called Tulip-tree, is used in Florida, in combination with the Snake-root, as a substitute for the Peruvian bark, in the treatment of intermittent fevers. The flowers of the *Magnolia tripetala*, or Umbrella-tree, have a very powerful smell. They often induce nausea and head-ache.

I AM inclined to think, that the *Cortex Angusturæ*, which has lately been introduced into medical practice, and is so greatly celebrated as a tonic, by the practitioners of Britain, is the bark of some species of *Magnolia*.

THE *Liriodendron Tulipifera*, well known, in the United-States, by the names of Tulip-tree, Poplar, White-wood, &c., is very closely allied, by its botanical character, to the *Magnolias*. They both belong to the same class and order of the sexual system, and both, I believe, possess nearly the same properties. The bark of the *Liriodendron* is frequently used in intermittents. Many persons are of opinion, that in this case, it is but little inferior to the Peruvian bark. I have never employed it†.

THE bark of the *Populus tremula*? or *Aspin*? has likewise been used in cases of intermittent fevers. This is a powerful tonic, and deserves the attention of the American physician. It has been found very useful, as a stomachic, in the diseases of our horses.

* See Dr. Duncan's Medical Commentaries, for the year 1793. Vol. xviii. p. 445.

† For some information concerning the medical properties of the *Liriodendron*, I must refer my readers to a short paper, by Dr. Rush, in the Transactions of the College of Physicians of Philadelphia. Vol. I. Part. I. p. 183--185. Philadelphia: 1793.

THE Snake-root, the *Aristolochia Serpentaria*, is one of the more stimulating tonic bitters. It is certainly a valuable medicine, in the second stage of certain fevers, after the inflammatory diathesis has been removed. It was used, with great benefit, in a most malignant fever, attended with carbuncles, which prevailed at Bristol, on the Delaware, in this state, in the years 1749 and 1753. Another species of this genus, the *Aristolochia siphon* of L'Heritier, grows in the neighbourhood of Pittsburgh, and in other parts of the United-States. This is a large, climbing plant. The root has a pungent, aromatic taste, and for certain purposes is, perhaps, preferable to the common Snake-root.

I SHALL conclude this subject of tonics by observing, that we possess a good many of the bitter plants of Europe, which have long claimed the attention of physicians. Our Gentians have not been carefully examined. We have one species which appears to be equal to any of the officinal kinds yet known.

SECTION III. STIMULANTS, OR INCITANTS.

THE class of STIMULANTS, or INCITANTS, is so very extensive, that in order to exhibit a methodical or natural medical arrangement of these articles, it would be necessary to consider them under a number of different heads, or sections. But this, in such a sketch as I offer you, does not appear necessary. I shall content myself, therefore, with speaking of a few of our native

stimulant vegetables, under the two heads of such as are more general, and such as are more partial, or topical, in their operation.

§ I. GENERAL STIMULANTS.

I THINK that many of our different balsamic products may, with propriety, be considered under the head of GENERAL STIMULANTS, though they are certainly not the most diffusible articles of this class. Such is the resin of the *Populus balsamifera*, called Balsam, or Tacamahaca-tree. This is a native of North-America and of Siberia. The resin is procured from the leaf-buds. This balsam is so very penetrating, that it communicates its peculiar smell and taste to the flesh of certain birds, which feed upon the buds. It was formerly supposed, that the Tacamahaca of the shops was the produce of this tree. But it seems more probable, that it is the produce of the *Fagara octandra**.

THE gum-resin which exudes from the Sweet-gum, or Maple-leaved *Liquidambar*-tree, the *Liquidambar styraciflua* of Linnæus, deserves to be mentioned. The storax of the shops is thought to be the produce of this tree: but, perhaps, this point is not yet quite ascertained†. I am informed, that the produce of

* The *Fagara octandra* is a small tree, which grows spontaneously in Curacoa, and other West-India Islands, and also (according to Sonnerat) in the Isle of France, in the East-Indies.

† It is more probable, perhaps it is certain, that the storax is the produce of the *Styrax officinale*, a tree which grows spontaneously in Italy, the southern parts of France, Ethiopia, and other countries of the old world. It is also said to be a native of the southern parts of the United-States. This, I think, is very doubtful. There are, however, in the United-States at least

our tree has been used, with advantage, in diarrhoeas*. Some of our southern Indians mix the dried leaves with tobacco, for smoking.

To the head of stimulants I have no hesitation in referring a number of poisonous vegetables, with the properties of which we are not so well acquainted as we ought to be. Such are the *Datura Stramonium*, or James-town-weed, the *Cicuta maculata*, &c.

THE *Datura* is one of our most common plants. It is certainly a medicine possessed of useful powers. The properties of this vegetable have lately been more satisfactorily investigated by one of our members, Dr. Samuel Cooper.

WE have several native plants of the natural order *umbelliferæ*. That described by the late Dr. James Greenway†, under the name of *Cicuta venenosa*, should be carefully investigated. This, from his account, must either be a direct sedative, or a stimulant, whose first operation is very soon accomplished. It kills without inducing pain or convulsions. Perhaps, the plant with which some of our Indians, when weary

two indigenous species of the genus *Styrax*, viz. the *Styrax grandifolium* and *Styrax lævigatum* of Aiton. Of the medical properties of these, I know nothing.

* The root of this *Liquidambar*, boiled in milk, has been used, with much advantage, in cases of dysentery and diarrhoea. The patient is directed to drink freely of the decoction. The gum-resin itself made into an ointment with mutton suet, has been found very beneficial, externally applied, as an antispasmodic, in different cutaneous affections.

† See Transactions of the American Philosophical Society. Vol. III. No. xxix. In Virginia, this plant is called Wild-Carrot, Wild-Parsnip, Fever-root, and Mock-Eel-root.

of life, destroy themselves, is the same. It grows in meadows, and has a root like a parsnip.

BEFORE I take leave of these poisonous plants, I may mention some others, whose properties are but little known. The first is the *Rhododendron maximum*, or Pennsylvania Mountain-Laurel. This is certainly a poison. It is a species of the same genus as the *Rhododendron Chrysanthum*, which has lately acquired much reputation in the cure of chronic rheumatism*.

NEARLY allied to the *Rhododendron* is the genus *Kalmia*. Of this we have several species, and all of them are poisons. The *Kalmia latifolia*, or Broad-leaved Laurel, is best known to us. It kills sheep and other animals. Our Indians sometimes use a decoction of it to destroy themselves. In the county of Lancaster, an empiric has used the powdered leaves, with success, in certain stages of fevers, and in *tinea capitis*. A decoction of the plant, externally applied, has often cured the itch; but it must be used with great care, for thus applied it has been known to occasion disagreeable subsultus, or startings, and convulsions. I have given the powder of this plant internally in a case of fever, and have thus, at least, ascertained, that it may be used with safety.

* The *Rhododendron Chrysanthum* is a fine shrub, which grows spontaneously upon the summits of the mountains in the neighbourhood of the river Jenisea in Asia; upon the mountains about the lake of Baical; through the whole of the country of Eastern Siberia; in the Peninsula of Kamtschatka, and in Behring's island, between the continents of Asia and America. It is not improbable (as Asia possesses so many vegetables and animals in common with North-America) that this species of *Rhododendron* will also be found native within the limits of the latter continent; perhaps upon some of the great ranges of mountains in the United-States. Upon the Cheerake-mountains, in North-Carolina, my friend Mr. William Bartram discovered a beautiful new species of *Rhododendron*, which he has named *Rhododendron aromaticum*. † is the *Rhododendron punctatum* of Willdenow.

THE medical properties of our different species of *Andromeda* and *Azalea*, which, in botanical character, are very nearly akin to the *Rhododendron* and *Kalmia*, are but little known to me. I have long suspected that they are poisons. A decoction of the *Andromeda Mariana* has been found useful, as a wash, in a disagreeable ulceration of the feet, which is not uncommon among the slaves, &c., in the southern states.

THE *Gaultheria procumbens*, which we call Mountain-tea*, is spread very extensively over the more barren, mountainous parts of the United-States. It belongs to the same class as the plants just mentioned. I have made use of a strong infusion of this plant, which is evidently possessed of a stimulant and anodyne quality. I am told it has been found an useful medicine in cases of asthma. But I have not learned to what particular forms of this disease it is best adapted, nor in what manner it operates.

OUR native species of *Laurus* deserve to be investigated. The Camphor and the Cinnamon belong to this genus: but, hitherto, they have not been discovered within the limits of the United-States. The properties of the Common Sassafras, which is a species of *Laurus*, have not been sufficiently examined. It is the *Laurus Sassafras* of the botanists. I have already mentioned the bark. Its oil seems to be an useful medicine. I have been assured, that this oil has been found an efficacious remedy, externally applied, in cases of wens. This looks probable; for our medicine is nearly allied to camphor,

* It is also called Berried-tea, Grouse-berry, and Deer-berries. If I do not mistake, this is one of the principal articles in the materia medica of some of our Indian tribes. In the language of some of the Indians of Canada, it is called *Pollom*.

which has been used with advantage in bronchocele* I knew a woman in whom an infusion or tea of the root of the Sassafras always induced an oppression at the breast, with sighing and depression of spirits.

DURING the late American war, necessity drove the inhabitants, in many parts of the United-States, to seek for a substitute for some of the spices to which they had been accustomed. They used the dried and powdered berries of the *Laurus Benzoin*, which we call Spice-wood, and Wild-Alspice-bush, and found them a tolerable substitute for alspice†.

THE celebrated Ginseng, or *Panax quinquefolium*, may, with propriety, be thrown into the class of stimulants‡. I find it difficult to speak of this plant with any degree of certainty. If it were not a native of our woods, it is probable that we should import it, as we do the teas of China and Japan, at a high price.

THE *Eryngium aquaticum*, or Water-Eryngo, is one of the stimulants which more especially act as sudorifics. It is nearly allied, in its qualities, to the *contrayerva* of the shops. It is one of the medicines of our southern Indians. They use the decoction.

* The oil rubbed upon the head has been found very useful in killing lice. The bark, especially that of the root, powdered and mixed with pomatum, has the same effect.

† “A decoction of the small twigs makes an agreeable drink in slow fevers, and is much used by the country people. It is said the Indians esteemed it highly for its medicinal virtues.” Reverend Dr. M. Cutler.

‡ The Ginseng is by no means a powerful stimulant. It is not very happily arranged in the class of *Medicamenta Stimulantia*, or *Incitantia*. The Indians make use of a tea prepared of the leaves as well as the root of this plant. But I cannot learn, that they so highly esteem the Ginseng as their Tartar brethren in Asia do.

AMONG the more acrid stimulants of our country, I may mention the *Arum triphyllum*, or Indian-Turnip, as it is most commonly called. I could wish that the properties of this plant were examined with attention. The leaves of a plant a good deal allied to this, I mean the *Dracontium pertusum* of the botanists, are employed, by the Indians of Demerara, in a very singular manner, in the treatment of general dropsy. The whole body of the patient is covered with leaves. An universal sweat, or rather vesication, is induced, and the patient often recovers. Perhaps, it would be worth trying this practice in cases of anasarca, which have resisted the usual modes of treatment*.

* This fact was communicated to me by my friend, the late Mr. Julius Von Rohr, a gentleman whose death is a real loss to natural science, and perhaps an irreparable loss to the interests of an injured and oppressed part of mankind: I mean the Blacks. In the summer of 1793, I took my last adieu of this learned botanist, and most amiable man. He sailed, from New-York, for the coast of Africa, where he contemplated the establishment of a colony of Blacks. A few days after he had landed on the African continent, he died of a malignant fever. With him, I fear, has perished, for a long time at least, one of the best concerted schemes for the safe and happy emancipation of the swarthy children of Africa. Von Rohr was another HOWARD. In benevolence and good sense, he was, at least, equal to the great English philanthropist. In science certainly, and perhaps in the simplicity of his conduct, and the unambitious fervour of his zeal, he was his superior. Of all the men I have ever known, he appeared to me to be most eminently entitled to the character of a PRACTICAL CHRISTIAN. Mr. Von Rohr was a native of Denmark. I hope his countrymen will do justice, if they have not already done it, to his great merits. It is the vice of ingratitude, it is even criminal, to suffer so much disinterested goodness, as inhabited the bosom of my friend, to sleep, neglected, in the grave. Happy should I esteem myself, if I could hope, that this feeble, this retired tribute to the memory of one of the best of men, might lead those who knew him long and well, to do *all* justice to his virtues. With his merits in science, no man was better acquainted than the learned Professor Fabricius.

§ II. TOPICAL STIMULANTS.

By the TOPICAL STIMULANTS, I mean those articles which more especially increase the action or living powers of the parts to which they are applied, and which, at the same time, generally produce a discharge of fluid from the part. The *Cantharis* is one of these articles: but of this, as an animal body, and not a native, I have nothing to say*.

* The United-States, rich in the articles of the *materia medica*, furnish us with several species of insects, which may be employed as valuable substitutes for the *cantharides* of the shops. It is my intention to publish a particular and full account (illustrated with coloured engravings) of these insects. It may not be amiss, in the mean while, to observe, that the species commonly called "Potatoe-Fly," which is now much employed (and which I have often employed) as an epispastic, is the *Lytta vittata* of Fabricius: the *Cantharis vittata* of Olivier. This, during certain seasons, is so extremely common in many parts of the Union, that it might be collected and sold at a much cheaper rate than the foreign *cantharides* of the shops, to which it is by no means inferior in strength. On the contrary, from frequent employment of the two articles, I cannot hesitate to prefer the American to the foreign fly. Long-keeping, provided it be carefully kept, does not materially impair the blistering property of the *Lytta vittata*. At the end of three or four years after being collected, I have found it equal in power to the best shop *cantharides*. This insect, though commonly called the Potatoe-Fly, is frequently met with upon other vegetables of very different natural families, such as garden peas and beans, species of *Amaranthus*, the *Actæa racemosa* (formerly mentioned), and others.——Besides this, there are, in the United-States, several other species of the genus *Lytta*, such as *Lytta atrata*, *Lytta marginata*, &c.—1. *Lytta atrata* (of which I have observed two varieties, differing both in size and in the shades of colour) is an extremely common insect, in many parts of North-America. It is most commonly found, in the autumn, upon different species of syngenious plants, such as *Aster*, *Solidago*, &c. Though inferior in power to the *Lytta vittata*, it is well worthy of the attention of physicians, and may always, I think, be collected in quantity nearly sufficient to answer the demand of the practitioner.—2. *Lytta marginata* of Fabricius (the *Cantharis marginata* of Olivier) is much less common: but it is more powerful than either of the preceding species.—3. *Lytta cinerea* is also very powerful, but not common; at least within the field of my explorations. The blistering property of these two insects is so very great, that the discovery of them, in large quantities, would be a matter of great importance to the interests of medicine. Though they inhabit (one of the species, in particular) plants of a very acrid nature, it does not appear, that from this

THE bark of our White-Walnut, or Butternut, the *Juglans cinerea* of Wangenheim, is a pretty efficacious blister. The bark of the root is more powerful than that of the stem or branches. It has been applied, with advantage, as a blister, to the bite of some of our venomous serpents*.

I BELIEVE the bark of our Moose-wood, or Leather-wood, the *Dirca palustris* of Linnæus, is also a blister. This plant, by its botanical habit, is nearly allied to the genus *Daphne*, all the species of which are blisters; especially the *Daphne Gnidium*.

SOME of our Indians make use of a plant, which, when mashed a little, induces nearly as good a blister as the cantharides. It has been used with advantage in sciatica. I do not know this plant.

THE *Ranunculus sceleratus*, or Celery-leaved Crowfoot, is a very acrid plant. If it be bruised, and laid upon any part of the body, it will, in a few hours time, raise a blister. This plant is a native of Europe and of America. The *Ranunculus bulbosus*, called Bulbous Crowfoot, and Butter-cups, possesses the same properties. This plant grows very plentifully in our meadows and fields; but I believe it is not a native.

To this head of topical stimulants, I may refer several species of the genus *Rhus*, or Sumac; particularly

source they derive *much*, if any, of their peculiar power: for I find that these insects exert equally energetic effects upon the human skin, when they have been confined entirely to a diet of vegetables of a very mild nature, such as the legumina, &c.—November 30th, 1810.

* See Transactions of the American Philosophical Society. Vol. III. p. 102, 105, 114.

the *Rhus radicans*, or Poison-vine; the *Rhus vernix*, or Vernice-tree; and the *Rhus Toxicodendron*, or Poison-oak. In many persons they induce a peculiar and very troublesome vesication, which I have frequently removed, in a short time, by means of a mercurial wash. These plants are more active in the southern than in the northern climates. They more readily poison immediately after than before a full meal. Their stimulant effect is extended beyond the skin. It is said that the bark of one species (but I cannot tell you what species) has been found useful in intermittents.



SECTION IV. ERRHINES.

I HAVE but little to say under the head of ERRHINES, or STERNUTATORY MEDICINES. Our native vegetables of this class, with the exception of the Tobacco, are but little known to me. Of the Tobacco, as being so well known to you all, I need say nothing.

THE brown powder which is attached to the foot-stalks of the leaves of the *Andromeda*, the *Kalmia*, and the *Rhododendron*, formerly mentioned to you, is considerably errhine. The powder about the seeds, in the seed-vessels of the same vegetables, possesses a similar quality. Whether this powder may be advantageously employed in practice, I cannot say.

WE have many native species of the genus *Euphorbia*, or Spurge. There can be little doubt, that some of them are sternutative*.

* The leaves of the American *Canadense* are errhine. — To this short and imperfect list of the native errhine plants of the United-States, I must

SECTION V. SIALAGOGA.

THE number of SALIVATING MEDICINES is, I believe, much greater than has been commonly imagined. Perhaps, there are but few of the Incitant medicines which may not be so managed as to salivate. Opium, camphor, and hemlock* all induce salivation†.

not omit to add the *Helenium autumnale* of Linnæus. This is an extremely common plant in many parts of the Union, growing generally along the margins of rivers, and flowering from the latter part of the summer through the autumn. The leaves and flowers of this plant possess the sternutative quality in an eminent degree: but it is strongest in the flowers, and especially in the florets of the disk. A very small quantity of these florets reduced to a powder between the fingers, or otherwise, gives a strong and durable impression, when applied to the nose. Such, indeed, is the degree and durability of impression, without at the same time, any of the violent and dangerous stimulus, which is the consequence of the application of the juices and other preparations of certain species of *Euphorbia*, of *Veratrum album*, &c., that I do not hesitate to consider the *Helenium autumnale* (or Sneezeweed, as it is called in some parts of Virginia, &c.) as a valuable addition to the list of our useful medicines. It may be employed either by itself, or combined with other vegetable matters; or along with sulphat of mercury, as a mercurial errhine. The good and important effects of these mercurial errhines, and even of the simple vegetable errhines, are frequently so obvious, that it is to be regretted that they are not more frequently resorted to by physicians, in cases of amaurosis, or gutta serena; in cases of deafness, especially perhaps when the affection depends upon a morbid state of the eustachian tube; in cases of rheumatic congestions of the jaws, &c. In all these cases the errhine medicines have often been employed with much advantage by physicians: and it is a fact that they sometimes give relief when other measures, more generally applied, have been applied in vain.——A species of *Veratrum*, or *Helonias*, nearly allied to the *Veratrum album* of the old continent, is a pretty common plant in many parts of the United-States, and seems to possess the same sternutative and other active properties, that the foreign plant does. The American plant, to which I allude, is the *Veratrum viride* of Aiton; the *Helonias viridis* of some later botanists.——December 2d, 1810.

* *Conium maculatum*.

† There are many well-attested instances of the salivating power of these three medicines. Hemlock, in particular, has been observed to produce this effect. I have seen, in a case of mania, a pretty extensive salivation induced by camphor. The patient, who had long been ill, was completely cured. This case occurred, under my care, in the Pennsylvania Hospital

I AM but little acquainted with our indigenous salivative vegetables. The Seneca Snake-root has, long since, been observed to possess this property*.

THE *Zanthoxylum Clava Herculis*, or Tooth-ach-tree, is a very powerful stimulant. Applied to the mouth and internal fauces, it occasions a copious flow of saliva. By this property, it appears to be a good deal allied to the *Pyrethrum*, *Cochelaria*, &c. I am informed that our plant is not merely an external sialagogue, but that even when taken into the stomach, it exerts its effects upon the salivary glands. I speak of the bark of the plant: but the seed-vessels have the same property. This medicine has been given internally in cases of rheumatism.

SECTION VI. EMETICS.

AMONG the indigenous vegetables of our country, there are several which are entitled to your attention as EMETICS. Such are the *Euphorbia Ipecacuanha*, the *Spiræa trifoliata*, the *Asarum Canadense*, &c.

THE first of these, the *Euphorbia Ipecacuanha*, like all the species of the genus, is an extremely active plant†. It is employed as an emetic by some of the coun-

* In a case of hydrothorax (complicated with anasarca), that came under my own notice, the patient, a lady about fifty years of age, was very profusely salivated by the use of a strong decoction of the Seneca.

† The species of *Euphorbia*, or Spurge, grows spontaneously in various parts of the United-States. In the state of Jersey, within a few miles of Philadelphia, it is pretty common, growing in the dry and sandy soil. It flowers early in the spring. It is the root which is employed.

try-people. I do not know the dose. I suppose it is small, for it belongs to the head of drastic emetics. I am not certain that it would be a valuable addition to the materia medica; but, perhaps, it would. There are many cases in which we have occasion to make use of immediate and active emetics; as when certain poisons, such as laudanum, &c. have been swallowed. In such cases it may, possibly, be of much use.

I CAN speak with more confidence of the *Spiræa trifoliata*. This is a shrub, which grows very plentifully in various parts of the United-States. It is one of the few active plants of the class *Icosandria*, to which it belongs*. The root, which is the part made use of, like that of the officinal ipecacuanha, consists of a cortex or bark, and a ligneous or woody part. The active power of the root seems to reside exclusively in the bark. It is a safe and efficacious emetic, in doses of about thirty grains. Along with its emetic, it seems to possess a tonic, power. It has, accordingly, been thought peculiarly beneficial in the intermittent fever; and it is often given to horses to mend their appetite. This plant has a number of different names, such as Ipecacuanha, Indian-Physic, Bowman's root, &c.

WE have several species of the genus *Asarum*, or *Asarabacca*. I am best acquainted with the *Asarum Canadense*, which is well known by the name of Wild-

* Linnæus thought it very remarkable, that a plant belonging, as this does, to the order of *Senticosæ*, should possess such active powers. "*Spiræam trifoliatam* Ipecacuanam vocant & vomitum facere dicunt, quod sane singulare esset in hoc ordine:" viz. *Senticosæ*. Caroli a Linne, M. D. *Prælectiones in Ordines Naturales Plantarum*. Edidit P. D. Giseke. p. 449. Hamburgi: 1792 But it might be shown, that other plants of the same natural order are considerably active. Not to mention others, it will be sufficient to observe, in this place, that the *Spiræa Opuli folia*, well known, in the United-States, by the name of Nine-Bark, is by no means an inert vegetable.

Ginger*. In Virginia, it is called Coltsfoot. Both the root and leaves may be used. The expressed juice of the fresh leaves is a powerful emetic.

SOME of our Indians also prepare an emetic from the bark of a certain vine, which a good deal resembles the *Celastrus scandens* of Linnæus. This vine bears bunches of red berries of a sweetish taste, but of a poisonous nature. I know nothing of this plant from my own experience; but a gentleman† who has used it prefers it to every other emetic. The Indians make a decoction of the bark. A large dose is required to produce the effect. This is certainly an objection against its use.

A DECOCTION of the *Eupatorium perfoliatum*, or Thorough-wort‡, is also emetic. I might have observed, that this plant is used by our Indians as a medicine in intermittent fevers.

THE root of the *Sanguinaria Canadensis*§ has been mentioned to me as an emetic. I know nothing particular of this property of the plant. I should have observed, under the head of GENERAL STIMULANTS, that the seeds appear to possess nearly the same quality as the seeds of the *Datura Stramonium*.

I HAVE been assured, that the Six-Nations make use of at least twelve or fourteen different emetics. All

* This has already been mentioned, as an errhine medicine. See page 24.

† Mr. John Heckewelder.

‡ In some of the New-England states, this plant is called Thorough-wax. This, like a very large proportion of the American names for plants, is misapplied. The Thorough-wax of the English is a species of *Bupleurum*, a plant, *toto coelo*, different from the *Eupatorium perfoliatum*.

§ Called, in the United-States, Indian-Paint, Puccoon, Turmeric, &c.

of them, except the sulphat of iron, are vegetables. It is probable that the *Spiræa Ipecacuanha*, *Euphorbia Ipecacuanha*, &c. are among the number of these vegetable emetics.

I SHALL conclude this subject of emetics by recommending to your attention an examination of the properties of some of our native species of *Viola*, or *Violet*. I suspect it will be found, that the roots of some of these are indued with an useful emetic quality.

SECTION VII. CATHARTICS.

WE have many indigenous CATHARTICS. Some of them are well worthy of your attention. These may be divided into two kinds, the milder, and the more drastic.

AMONG the more mild, I may mention the *Triosteum perfoliatum*, sometimes called Bastard-Ipecacuanha. This, when given in very large doses, sometimes proves emetic; hence the vulgar name. But I find it a good cathartic. The cortex, or bark, of the root is employed. I give it in doses of twenty and thirty grains. On some occasions, it has seemed to operate as a diuretic. But this may have been only an accidental circumstance. Rhubarb sometimes produces the same effect, as has been observed by C. Piso.

NEARLY allied to the *Triosteum*, I mean in its properties, is the *Asclepias decumbens*. This is one of

our most beautiful and common plants. It has received many vulgar names, such as pleurisy-root, Flux-root, Butterfly-weed, &c. It has been much celebrated, especially in Virginia, as a remedy in dysentery. I have used it, and I think with advantage. I believe it does good principally by its purgative quality. The dose is from twenty to thirty grains of the root, in powder. A great deal has been said about the virtue of this vegetable in pleurisy.—The powder of this *Asclepias* is escarotic, and has been found useful in restraining fungous flesh in ulcers. I believe this, and not the *Poke**, as has been supposed, is the plant which is employed by our southern Indians, in cases of venereal chancre.

THE dried fruit of our Papaw, or Custard-apple, the *Annona triloba* of Linnæus, is likewise purgative. I can say nothing of it from my own experience.

I KNOW nothing, from experience, of the *Mechameck*, or Wild-Rhubarb, of some of our Indians. It is, certainly, a species of *Convolvulus*, or Bind-weed, and I believe the *Convolvulus panduratus*†, which in Virginia is called Wild Potatoc. Its name, Wild-Rhubarb, implies that it is a purgative. An extract but little, if any thing, inferior to the Scammony of the shops, has been procured from one of our species of *Convolvulus*. One must have a good deal of *medical faith* to believe what Catesby has said concerning the remarkable power of the *Convolvulus purpureus*, or Purple-Bindweed‡.

* *Phytolacca decandra*.

† It is, without doubt, the *Convolvulus panduratus*. This plant is called, in the state of Delaware, Wild-Potatoc-Vine; and the root Kussander, or Kassader (which is a corruption of the word Cassada); Negro names, I presume.

‡ The Natural History of Carolina, &c. Vol. I. p. 35.

MORE active than any of the native purgatives, which I have mentioned, is the *Podophyllum peltatum* of Linnæus. This is a very common plant through the whole of the United-States, and in other parts of North-America. It is known by a variety of names, such as May-apple, Mandrake, Ipecacuanha, Wild-lemons, &c. The fruit is esculent, and by many persons is thought delicious. The leaves are poisonous. It is the root which is used in practice. In doses of twenty grains, it is an excellent cathartic. It has some advantages over the rhubarb and jalap. It is most advantageously used in combination with calomel, or the crystals of tartar. I have heard much of the virtues of an extract prepared of this root; but have never used it.

THERE is a plant which was thought by Linnæus to be a species of the same genus. He called it *Podophyllum diphyllum*. I have shown, that it is a new genus*. I have not been able to collect a sufficient quantity of this to ascertain its powers; but, judging by the taste and smell, which it must be confessed are sometimes fallacious tests, I suspect its root possesses the virtues of the May-apple, or *Podophyllum peltatum*.

THE *Cassia Marilandica*, one of our finest plants, belongs to the same genus as the senna of the shops. The American species possesses nearly the same virtues as the Eastern species. It is used as a purgative, in different parts of the United-States.

AN extract prepared from the inner bark of the *Juglans cinerea*, or Butternut-Walnut, has long been used as a purgative in the United-States. It is a valuable

* See Transactions of the American Philosophical Society. Vol III No 36

medicine. As it is often, however, very carelessly prepared by the country-people, it has gone into some kind of neglect. It ought to be prepared by the better informed apothecaries, and have a place in the Pharmacopœia of this country, WHEN SUCH A DESIDERATUM SHALL BE SUPPLIED. The dose of this extract is from ten to thirty grains. I have thought it possesses something of an anodyne property.

I HAVE been told, that some of our Indians use as a cathartic a decoction of the bark of the root of the *Dirca palustris*, or Leather-wood, already mentioned to you. Of this property of the *Dirca* I know nothing farther.

THE decoction or powder of the root of the *Polygala Senega*, or Seneca Snake-root, is also a purgative. Dr. Cullen, indeed, thinks its purgative is its most striking property, and therefore he arranges it under his head of cathartics*.

SOME of our native species of *Iris*, or Flag, are powerful cathartics. Such are the *Iris versicolor*, and the *Iris verna*. They are both used by our southern Indians†. I can say nothing certain concerning the dose of these vegetables. It is doubtless small, for they are very active plants. Several of the European species of *Iris* are irritating cathartics.

A SPECIES of *Croton*, or perhaps of *Stillingia*, is

* "I have put it into the catalogue of purgatives, as this is the only operation of it that is constantly very evident; and perhaps all its other virtues depend upon this." A Treatise of the Materia Medica. Vol. II. p. 532. Edinburgh: 1789. 4to.

† Mr. William Bartram.

used in the southern states, as a cathartic. It enters into the composition of a medicine which has acquired much celebrity in the cure of that hideous disease the frambæsia, or yaws. This plant grows spontaneously on the dry, high lands of Carolina, Georgia, and Florida. It is called Yaw-weed, and Cock-up-Hat. The *Stillingia sylvatica*, perhaps the very plant I have been speaking of, is said to be a specific in the venereal disease*.

* Bernard Romans says, the Jalap grows wild near Pensacola, in West-Florida. Possibly, he has mistaken for it some other species of *Convolvulus*. I am now persuaded, that the genuine Jalap of the shops (the *Convolvulus Jalapa* of Linnæus, of which Mr. Desfontaines has lately published an ample history, illustrated by a fine engraving) is not, as has been asserted, a native of any part of the United-States: nor do I believe it occurs, as an indigenous plant, in West-Florida. The plant alluded to by Romans is, in all probability, the *Ipomoea macrorhiza* of Michaux (*Flora Boreali-Americana*, &c. Tom. i. p. 141.), which this writer mentions as a native of the maritime parts of Georgia and Florida. The root is very large, sometimes weighing at least fifty or sixty pounds. It is found to be a good cathartic, and well worthy of a place in the shops, but it is inferior to the best Jalap of the shops. The powder of the root is of a paler colour than Jalap, and much more resembles the Mechoacan of the shops. Possibly, they are not different. A late very respectable writer (Mr. Persoon) has given it as his opinion, that Michaux's plant (*Ipomoea macrorhiza*) is no other than the genuine Jalap. But this is, unquestionably a mistake. The true Jalap is a species of *Convolvulus*.—The *Ricinus communis*, from the seed of which we procure that invaluable purgative medicine, the Castor-oil (so indispensably necessary in the treatment of colica pictonem, dysentery, and many of the affections of children especially), grows wild and in great abundance, upon the river St. John, in the Peninsula of East-Florida. It is now cultivated in many parts of the United-States, and is deemed, even in a pecuniary point of view, an object worthy of the attention of many of our farmers and planters in Maryland, Virginia, the state of Ohio, &c.—1810.

SECTION VIII. DIURETICS.

DIURETICS have so long been employed, with benefit, in the treatment of dropsies, that it becomes a matter of consequence to increase the number of the medicines of this class, and to learn how to exhibit, with more advantage, those which are already known. I do not mean by this observation to assert, that dropsies cannot be cured without the use of diuretic medicines. On the contrary, I am persuaded that they can, and often are, especially when the dropsy depends upon fever, or is connected with it. But, in the management of all kinds of dropsies, it is often necessary to have recourse to the use of diuretics, and I believe that some of the worst forms of this disease, such as hydrothorax, are most effectually cured by these medicines. The *Digitalis purpurea*, so much and so justly celebrated at present, is not, to my knowledge, a native of any part of America*. But we have several native diuretics, which deserve the attention of our physicians. Such are the Seneca-Snake-root, the *Lobelia siphilitica*, the *Serratula spicata*, the Cassena, and others.

THE first of these, the *Polygala Senega* of the botanists, along with its diuretic, possesses an emetic, cathartic, expectorant, salivating, and diaphoretic power.

* I have, somewhere, seen the *Digitalis* enumerated among the indigenous medicinal vegetables of the United-States. I know not, however, upon what authority, it is called an American plant. I suspect, some species of *Gerardia* has been taken for it. The *Digitalis*, however, bears, extremely well, the open ground of Pennsylvania, and other parts of the United-States. It will, *in time*, assume the appearance of a native, among the many other foreign vegetables, which (especially in the older-settled parts of the United-States) are commonly considered as natives, though, in fact, they are merely *naturalized foreigners*.

I have already hinted at its salivating and cathartic operation. As a diuretic, it has been employed, and found useful, in dropsy, by Tennent, Bouvart, and other writers. I am informed, that it has lately been used, with great success, in the treatment of the cynanche trachealis, or croup, by Dr. Archer of Maryland. He uses a strong decoction of the root, which operates as an emetic, cathartic, and expectorant. This medicine sometimes operates so powerfully as a sudorific, that I have been assured it has been known to remove portions of the mucous body, or rete mucosum, from the skin of blacks who have used it. I do not vouch for the truth of this fact: but I must confess that to me the circumstance does not seem improbable. Our Indians use a decoction of this root in syphilis*. I have no confidence in the powers which have been ascribed to the Seneca, in curing the bite of the rattle-snake†. Besides the *Polygala Senega*, we have several other native species of this genus. I do not know how far they possess the powers which have been ascribed to the Seneca itself. It is probable that they only differ in degree‡. Kiernander, a long time ago, remarked that the *Polygala vulgaris*, which grows spontaneously in Europe, possesses, though in a less eminent degree, the virtues of the celebrated American species§.

* They also make use of it in the malignant sore-throat! a disease often very closely allied to croup.

† See Transactions of the American Philosophical Society. Vol. III. No. xi.

‡ From some experiments which I have made with the *Polygala sanguinea*, which grows abundantly in the vicinity of Philadelphia, I am led to think, that this species may be employed, as an excellent substitute for the common species, now in use.

§ See his paper, entitled *Radix Senega*, in the *Amoenitates Academicæ* Vol. II. Dissertatio xxii.

THE *Lobelia siphilitica* is also considerably diuretic. This plant was purchased from the northern Indians, by the late Sir William Johnson, as a remedy in the venereal disease: hence its specific name, *siphilitica*. I do not believe, after paying some attention to the subject, that this plant has cured confirmed syphilis. I know that the Indians, even those who are best acquainted with the plant, are glad to have an opportunity of applying to the Whites for relief, when they have the disease. They, certainly, do not trust the cure entirely to the *Lobelia*. They use the bark of the Wild-cherry (*Prunus Virginiana*), the root of the May-apple (*Podophyllum peltatum*), and many other plants*. I believe, however, that the *Lobelia* has been of service in the disease. In gonorrhoea it has certainly performed a cure; but the tendency of the constitution, unaided by medicines, to get rid of this complaint, is well known. I may here observe, that gonorrhoea appears to be much more common among the Indians than syphilis. The *Lobelia* seems to operate chiefly by its diuretic quality. From their ignorance of botany, many persons in the western

* After a careful and pretty extensive inquiry into the subject, I have nearly satisfied myself, that the disease of syphilis was entirely unknown among the North-American Indians, before they became acquainted with the Whites. Many of our Indians (in truth, I believe *all* the tribes) speak of it as a foreign disease, communicated by the Whites. In this respect, they arrange syphilis (including gonorrhoea) along with small-pox, measles, and some other affections, which are, unquestionably, of *foreign* origin. I am not ignorant, that the late governor M. Lewis was led by his observations among the Indians in the western parts of North-America, towards the Pacific ocean, to suppose, and even to assert, that the small-pox is truly one of the indigenous diseases of North-America. But I am persuaded, that there is a fallacy in this observation, as I shall show in an express essay on the diseases and remedies of the Indians: and in this essay, I shall also give, at some length, my reasons for believing, that neither syphilis nor gonorrhoea were known, in any part of North-America, prior to the conquest of Mexico and Florida, by the armies of Cortes and Soto, in the beginning and towards the middle of the 16th century.—1810.

country have been using a plant, which they call *Lobelia*, in the same complaints. I have received specimens of the plant under the name of *Lobelia*. It proves to be the *Serratula spicata**, or Spiked Saw-wort. There is good reason to believe, that it has been found useful, not only in venereal complaints, but also in cases of nephritis calculosa, or gravel. THUS IGNORANCE SOMETIMES LEADS TO KNOWLEDGE. This supposed *Lobelia* is a powerful diuretic. The Indians sometimes drink the decoction of it so strong, that it occasions gleans†. It is the root of the plant which is commonly employed, but the flowers and the leaves may also be used.

AN infusion of another species of *Lobelia*, I believe the *Lobelia inflata*‡, has been found very useful in the leucorrhoea, or whites. It is a lactescent, and very ac-

* The *Serratula spicata* of Linnæus is now referred to the genus *Liatris*, and is the *Liatris spicata* of Willdenow and Persoon:—the *Liatris macrostachya* of Michaux. It is a common plant in many parts of the United-States, growing especially in the mountainous tracts of country.—1810.

† They cure these gleans by eating turpentine, as I am informed by my respectable friend Colonel Winthrop Sargent, late Governor of the Mississippi-Territory. An old Indian assured Mr. Sargent, that a decoction of this *Serratula* cures syphilis, in all its forms. Dr. Allison, one of the army-physicians, has an high opinion of the plant, in this disease. I am told, that a physician, at Pittsburgh, has found it an efficacious medicine in the gravel. It certainly ought to have a fair trial in these diseases. The late Major Jonathan Hart assured me, that the Indians northwest of the Ohio could not cure confirmed syphilis. He said the *Lobelia* (I suppose the *Serratula spicata*) had been of service in slight cases: but he was persuaded that the Indians would fall victims to the general complaint, if they were to trust wholly to their own remedies. Mr. Wilson, a gentleman well acquainted with the Indians, particularly the Delawares and the Shawneese, most confidently assured me, that they cannot cure the venereal disease, “when it gets into the blood;” but that they can cure the gonorrhoea. He also said, they can remove the venereal disease for a time, but “that it will break out again.”

‡ I now find, that it is the *inflata*. This is a very common plant in many parts of the United-States. Perhaps, this is the species of *Lobelia*, which is called, in New-England, Emetic-weed.

tive plant. I do not know that this acts as a diuretic, and it would have been more proper to have mentioned the plant under the head of stimulants.

THE Cassena is a species of *Ilex*, or Holly. It is the *Ilex vomitoria* of Aiton, and is a native of Carolina, West-Florida, &c. It has been called South-Sea-tea, or Evergreen-Cassine. It is thought to be one of the most powerful diuretics hitherto discovered. It is held in great esteem among the southern Indians. They toast the leaves and make a decoction of them. It is the men alone that are permitted to drink this decoction, which is called "Black Drink."

THE *Medeola Virginica* grows plentifully in the vicinity of this city, and in almost every other part of the United-States. Its root is white, and tastes a good deal like the cucumber, which has given the plant the name of Cucumber-root*. I am told that this root is diuretic, and has cured dropsies. The sensible qualities of the plant do not promise much; but this does not *prove* that it is not an useful medicine.



SECTION IX. ANTHELMINTICS.

OF the class of medicines called ANTHELMINTICS, or destroyers and expellers of worms, we have several which are entitled to your notice. One of the most celebrated of these is the Carolina Pink-root, the *Spigelia Marilandica* of Linnæus. This is a very common

* It is also called Indian Cucumber

plant in our southern states. It is a valuable medicine, as has been demonstrated by the physicians of Europe, and of this country. It is commonly given in the form of an infusion, or tea; but I prefer the exhibition of it in powder. It has been accused of occasioning, for a short time, a disagreeable affection of the eyes. But this effect may often be prevented by combining with the *Spigelia*, some of the common Virginia Snake-root. The Cheerake-Indians have so high an opinion of this plant, that it would sometimes be dangerous for a person to be detected in digging it up, to carry it out of the country. The Whites learned the anthelmintic powers of this vegetable from the Indians*. The *Spigelia* is said to possess other valuable properties. Infused in wine, it has been found an useful medicine in intermittent fevers. But I can say nothing particular concerning the precise mode of administering it in this case.

THE *Chenopodium anthelminticum* grows plentifully in the United-States. It is commonly called Worm-seed. The whole plant has a most powerful smell, of which it is very retentive. The taste is bitter, with a good deal of aromatic acrimony.

THE root of the May-apple (*Podophyllum peltatum*), which I have mentioned to you, under the head of cathartics, has often been found to operate as an anthelmintic. It is used as such by the Cheerake, and

* A convincing proof of this, I apprehend, that the American Indians, in common with the rest of mankind, are subject to worms, and to the diseases arising from worms. But, more than this, in my *Memoir on the Diseases and Remedies of the Indians*, I shall show, that the children of the savages are remarkably subject to worms, and to the *larvæ* of insects introduced into the system, along with their crude, and often unwholesome, aliment.

other southern Indians. Whether it operates by its cathartic quality exclusively, or partly by some other quality, deleterious to the worms, I cannot say. The Whites learned from the Indians the anthelmintic power of this plant*.

THE *Helleborus fœtidus*, or Stinking Hellebore, has been mentioned as a powerful anthelmintic, by Bisset, and other European writers. It has been used in this country, and has been found very efficacious. It is supposed to have been the worm-medicine of a Dr. Witt, who acquired much reputation by the use of it†.

THE Cheerake use a decoction of the root of the beautiful *Lobelia Cardinalis*, or Cardinal-Flower, as a remedy against worms. I have already mentioned the diuretic quality of another species of this genus, the *Lobelia siphilitica*.

THE seeds of the Common Tobacco (*Nicotiana Tabacum*) have also been found useful as an anthelmintic.

THE *Silene Virginica*, or Ground-Pink, as it is called in some parts of our country, is another native anthelmintic. A decoction of the root is used, and is said to have been found a very efficacious remedy‡.

* The best time for gathering the May-apple, for medical purposes, is the autumn, when the leaves have turned yellow, and are about falling off. The Indians dry it in the shade, and powder it for use.

† I am indebted to Dr. Adam Kuhn for this information. He says that Witt used the powder of the leaves, in combination with the ethiops mineral. It is probable, he added the ethiops merely with the view to disguise the vegetable.

‡ From the information of my friend, the late learned Dr. James Green-

I HAVE not lost all confidence in the anthelmintic powers ascribed to the *Polypodium vulgare*, or Male-Fern. I do suppose, however, that too much has been ascribed to this plant. We have several native species of this genus, which it would, at least, be a matter of curiosity to examine. The *Polypodium Virginianum* grows about this city, and probably possesses the same powers as the European species.

A VEGETABLE, called the Pride of India*, has lately been mentioned as an excellent anthelmintic. The bark of the root has been used as such in South-Carolina. This vegetable, the *Melia Azedarach* of Linnæus, is not a native of our country.

I SHALL conclude this account of our anthelmintics by observing, that the southern Indians dress all their dishes, prepared of the Indian-corn, or maize (*Zea Mays*), with a strong lixivium, or lye, of the ashes of bean-stalks and other vegetables, in order to prevent the generation of worms. They are of opinion, that this grain nourishes the worms exceedingly†. Nor is this opinion peculiar to the Indians.

way, of Virginia.—This species of *Silene*, or Catch-fly, grows abundantly, in many parts of the United-States, as in Pennsylvania, Virginia, &c. &c. Some of our Indians have told me, that it is a poisonous plant. This is highly probable, if it be a fact, that it is a very efficacious anthelmintic.

* In South-Carolina, it is also called Poison-Berry-tree, and China-tree. The former is its most common appellation in that state.

† Cornplanter, a very intelligent Seneca chief, has said, that one reason why the Indians do not rear so many children as the Whites is this, that the children of the former eat large quantities of *green* maize. Certain it is, that the Indians lose great numbers of their children; and I have, in their villages, remarked, that the children have often a pallid, unhealthy appearance, and very tumid bellies.

I HAVE thus, Gentlemen, endeavoured to present you with a specimen, or rather rude outline, of *An Essay towards a Materia Medica of the United-States*. My object has been a collection of facts. I could have wished for more leisure to have pursued the subject: but that leisure I do not possess. I hope, however, that, with all its imperfections, I have presented you with a sketch which will not prove unacceptable to you. I have opened a path, which deserves to be trod by you all.

THE man who discovers one valuable new medicine is a more important BENEFACTOR to his species, than Alexander, Cæsar, or an hundred other conquerors. Even his glory, in the estimation of a *truly* civilized age, will be greater, and more lasting, than that of these admired RAVAGERS OF THE WORLD. I will venture to go farther. All the splendid discoveries of Newton are not of so much real utility to the world, as the discovery of the PERUVIAN BARK, or of the powers of OPIUM and MERCURY, in the cure of certain diseases. If the distance of time, or the darkness of history, did not prevent us from ascertaining, who first discovered the properties of the Poppy, that “sweet oblivious antidote” for alleviating pain, and for soothing, while the memory remains, those rooted sorrows which disturb our happiness: if we could tell, who first discovered the mighty strength of Mercury in strangling the hydra of pleasures and of generation: if we could even ascertain who was the native of Peru, that first experienced and revealed to his countrymen the powers of the Bark in curing intermittent fevers; would not the civilized na-

tions of mankind, with one accord, concur in erecting durable monuments of granite and of brass to such benefactors of the species? Would not even the savage, who wants not a sense of benefits conferred upon him, be seen to form the tumulus of stones, or to raise the green sod, the only monuments his humble condition would admit of his erecting? And may we not yet look for the discovery of medicines as important to mankind as Opium, the Bark, and Mercury?

For this purpose (the discovery of new and valuable medicines), your situation, Gentlemen, is peculiarly happy. In the pursuit of one of the most dignified and most useful of all the sciences, you are placed in an extensive country, the productions of which have never been investigated with accuracy, or with zeal. From this school*, I will venture to call it the PUNCTUM SALIENS of the science of our country, you are to spread yourselves over the happiest and one of the fairest portions of the world. In whatever part of this vast continent you may be placed, you will find an abundant field of new and interesting objects to reap in. The volume of nature lies before you: it has hardly yet been opened: it has never been perused. But by your assistance, the knowledge of the natural productions of our country may be greatly extended; and travellers shall then no longer upbraid us with an utter ignorance of the treasures which an all-benevolent Providence has so largely bestowed upon us. May I not flatter myself, that among the number of those whom I am now addressing, there are some of you for whom medical discoveries of importance are reserved? discoveries which

* The University of Pennsylvania.

would add a lustre to your names, whilst they would ensure to you that which is much more to be desired, in this mixed scene of affairs, AN HAPPINESS THAT IS IMBOSOMED IN THE HAPPINESS OF ONE'S COUNTRY, AND THE WORLD.

END OF THE DISCOURSE.

APPENDIX,

CONTAINING

ILLUSTRATIONS AND ADDITIONS.

PAGE 7. "The chemical history of the Maize, or Indian corn," &c. Since I delivered this discourse to the Medical Society, I have met* with some account of Marabelli's analysis of this valuable grain. This analysis is, certainly, more complete than that of any preceding writer: but it is not as complete as it should be. According to Marabelli, the grain of maize "contains a " saccharine matter of different degrees of purity, from " which alcohol, the oxalic and acetous acids, may be " obtained; a vegetable amylaceous substance, a glutinous substance; muriat and nitrat of magnesia; carbonats of potash, lime, and magnesia; and iron."

Page 8. GERANIUM maculatum. This, I have little doubt, is the Geranium noveboracense, which is mentioned in Coelln's paper, entitled *Specifica Canadensium*†. On the authority of Governor Colden, it is said, in that paper, that a decoction of the root of this plant, is used by the inhabitants of New-York, in cases of dysentery.

* In Duncan's Annals of Medicine, for the year 1798. Vol. III. p. 208--211

† See *Amoenitates Academicæ*. Vol. IV. p. 522.

Page 9. *ACTÆA* racemosa. The Indians make use of a decoction of this plant, along with other vegetables, as a remedy, given internally, for rheumatism: but they depend much more upon a decoction of the roots of the *Actæa*, externally applied. It may not be incurious to mention their manner of employing it. They make a hole in the ground, into which they put a kettle, containing a quantity of the hot decoction. The rheumatic limb is laid over the kettle, in such a manner as to receive the influence of the steam. They keep up the heat of the decoction, by putting into it, occasionally, hot stones. I presume that the heat, independently of the vegetable employed, has *something* to do in the cure.

Page 10. *LIQUIDAMBAR* asplenifolium. Colden was informed, that the Indians chew the root of this vegetable, with a view to stop hæmorrhages in recent wounds. This effect of the Sweet-Fern may, perhaps, meet with some credit from those who have witnessed the wonderful powers of small doses of the preparations of lead, in diminishing and stopping, almost immediately after their reception into the stomach, hæmorrhages from the uterus, intestines, &c.

Page 11. *SPANISH* oak. In a case of gangrene of the foot, from a puncture of a nail, which came under my notice in the course of the last summer, I gave to the patient very large quantities of a decoction of this oak-bark; at the same time that the affected part was constantly kept wet with the same decoction, or with a poultice made of bread and milk, with the bark. I cannot but ascribe the recovery of my patient entirely to the use of these means; and I am emboldened to recommend to my countrymen the use of this cheap remedy, as one highly worthy of their attention, in similar cases.

Page 11. **PERSIMMON.** The bark of the root of the Persimmon was one of the principal tonic medicines which were employed in the treatment of dropsies, by the late Dr. Matthew Wilson, of Lewes, in the state of Delaware. Of this medicine Dr. Wilson had an high opinion; and he has particularly remarked, that it gently purges; an effect which I have observed from the employment of galls, alum, and several other astringents. **MANY OF THE ASTRINGENT MEDICINES DO PURGE.**

Page 12. **CORNUS florida**, or common Dogwood. The bark of the root, stem, and smaller branches is used. That of the root is, by most persons, deemed the more efficacious. Sometimes, the bark of this Dogwood is combined with that of the *Liriodendron*, and used either in decoction, or in substance.

Page 13. “ I AM well acquainted with a physician,” &c. The room in which the flowers of the *Magnolia glauca* produced the effects here mentioned, was not a small one, and was well aired. It was in the month of June. The late Mr. S. P. of Philadelphia, was always affected with a sense of great uneasiness about his chest, and with a strong tendency to fainting, whenever he entered a room where the flower of this *Magnolia* was.— A decoction of the bark of the root of the *Magnolia* is said to have been found very useful in the treatment of rheumatic affections.

Page 14. **THE Liriodendron Tulipifera.** In some parts of the United-States, the bark of this tree has been used, and has acquired much reputation, as a remedy in cases of gout and rheumatism. As a medicine possessing properties very nearly allied to those of the

callida amara, or heating bitters, which have, for ages, formed a part of the celebrated gout-powders, I think it not improbable, that the *Liriodendron* may have been used, with the *seeming* advantage of putting off, for a time, the inflammatory paroxysm of the gout. But the well-known history of the gout-powder is not calculated to encourage one to use (as a remedy, for the worst of diseases) a medicine which might only alter the shape of the disease, and give it a direction to the more essentially important part of the human frame.

Page 17. *Datura Stramonium*. Since the publication of the first edition of my *Collections*, I have had many opportunities of employing this medicine. I have used it chiefly in the form of an extract, prepared from the fresh leaves. I have principally exhibited it in cases of mania and epilepsy. I cannot hesitate to say, that it is a medicine of great and invaluable powers. It is my intention to publish the particulars of the cases in which I have employed this medicine, in a separate work*. I shall, therefore, content myself, in this place, with observing, that I have found the *Stramonium* especially beneficial in cases of mania attended with little or no fever, or with a cold skin, and languid circulation. I have thought it necessary to give the medicine in very large doses. Beginning with a few grains, the dose is gradually increased, and in a few days it may, with safety, be taken to the extent of fifteen or twenty grains. In one case of mania, I, at length, gave it to the extent of sixty grains, at a dose. When the patient had continued upon this dose for some time, she broke out into biles upon various parts of the body, and was, at length, discharged from the Hospital, perfectly cured. In se-

* Medical Facts, Experiments, Observations and Inquiries.

veral other cases of mania, the *Datura* has been of essential use. Except in one case, I have not perceived any inconvenience from it. In this case, whilst the patient was taking the medicine to the extent of thirty-two grains, it produced a very enlarged dilatation of the pupil of the left eye, and a palsy of the palpebra of the same eye. But even this was only a temporary inconvenience, which was removed, in a very short time, by the application of a blister. The patient resumed the use of the extract, and was finally discharged from the Hospital, apparently cured.

THE beneficial effects of the *Stramonium* in cases of epilepsy have been likewise very manifest. In a case of epilepsy, accompanied, at various periods, with fever, the medicine seemed to increase the sense of fulness in the head, and other disagreeable symptoms. But in several other cases, I exhibited it with the most manifest advantage. Although in no case have I been able to effect a cure with the *Stramonium*, I have, certainly, administered it with the effect of protracting the fits, and of diminishing their violence. Perhaps, much more than this cannot be said, with a strict regard to caution, of any other of the many medicines which have been recommended for the cure of epilepsy.

I HAVE been informed, that in the state of Kentucky, the seeds of the *Stramonium* are sometimes exhibited, with advantage, in cases of chronic rheumatism. On this subject, I cannot say any thing from my own experience. The seeds of this vegetable are, unquestionably, endowed with very active powers. This is abundantly evident from the pernicious effects which are so frequently observed in children, who have swallowed the

seeds. Dr. John Archer of Maryland, has found them of much advantage in cases of epilepsy*. I have used them, with seeming benefit, in a case of mania.

FOR much information concerning the Stramonium, I refer the reader to the late ingenious Dr. Samuel Cooper's *Inaugural Dissertation on the Properties and Effects of the Datura Stramonium*, &c. Philadelphia: 1797. This is a dissertation of great merit. It is well calculated to show, how much might have been expected from the labours of the amiable author, had it pleased Providence to prolong his existence, to a more matured age.

Page 18. *KALMIA Latifolia*. I have now employed the powder of the leaves of this plant, exhibited internally, in some cases of tinea capitis. In this very troublesome disease, the *Kalmia* is, certainly, a medicine entitled to attention. I have also employed the powder of the leaves, made into an ointment with lard, and externally applied to a disagreeable herpetic affection of the skin. In this case, also, I have found it extremely useful.—Even in confirmed syphilis, it has *seemed* to do good. In South-Carolina, this species of *Kalmia* is called Calico-tree.

The properties of *Kalmia angustifolia*, or narrow leaved *Kalmia*, seem upon the whole, to be nearly similar to those of *Kalmia latifolia*. The former is, I think, the more powerful plant of the two. I have been assured, that an infusion of the twigs and leaves of this *Kalmia* is employed, with much advantage, in some parts of Pennsylvania, &c., as a remedy for dysentery. I regret

* See Dr. Cooper's *Inaugural Dissertation*, &c. p. 52—54.

that I am unable to say any thing more particular on the subject.

Page 19. " A DECOCTION of the Andromeda Mariana has been found useful as a wash in a disagreeable ulceration of the feet, which is not uncommon among the slaves, &c. in the Southern states." This complaint is very common, particularly among the negroes, and the poorer sort of white people, in Carolina, Georgia, &c. It is called " toe-itch," and " ground-itch." It is a kind of ulcrous excoriation between the toes, sometimes extending as high as the instep, and is attended with most intolerable itching. It is, probably, in a great measure, the consequence of inattention to cleanliness. Is it occasioned by particular insects? Some persons, with whom I have conversed on the subject, are of opinion, that it is owing to the great warmth of the waters to the southward, in which the inhabitants are accustomed to wade a great deal. The disease is sometimes seen in Pennsylvania. Besides the Andromeda Mariana, or Broad leaved Moor-wort, a decoction of the leaves of the Kalmia latifolia is used for the cure of this complaint. The decoction of the leaves of both these plants is used. They are both called " Wicke" to the southward.

Page 20. " I KNEW a woman," &c. She was a stout, and seemingly very healthy, woman. She informed me, that a lady of her acquaintance was affected in the same way by this tea. I could not learn, whether the flowers of the Sassafras produced a similar effect.

GINSENG. Notwithstanding what I have said, in the note, I must not conceal, that the Indians, in some parts

of North-America, are said to use the Ginseng, "on religious occasions*."

Page 21. ARUM triphyllum. In its recent state, the root of this species of Arum is extremely acrid. By drying, we deprive it of much of its active quality. In this latter state, the root is frequently prescribed in catarrhal affections, of long standing; and (if I do not mistake) in asthma. The recent root boiled in lard, to the consistence of an ointment, has often been found useful in cases of tinea capitis, and in other similar affections.

Page 23. THE Ranunculus bulbosus. Every part of this species of Ranunculus is endued with an acrid quality. But it is especially the bulbous-like root which has frequently been used as a substitute for cantharides. Where the foreign and native species of blistering-flies cannot readily be procured, this Ranunculus ought not to be neglected. I have employed it, and am disposed to think, that it gives a more *durable* irritation to the part to which it is applied, than the animal blisters which I have mentioned. If this suspicion be well founded, it will not be denied, that there are cases in which the Ranunculus ought even to be *preferred* to those blisters. Among other such cases, I may mention vertigo, and affections of the stomach, both originating in a misplaced or irregular gout. I must not omit to add, that the roots of the Ranunculus, that are collected in the fall, may be very well preserved through the winter, by burying them in some fine, siliceous sand. When thus preserved, they retain, with very little diminution, their active irritating quality.

RHUS, or Sumac. "In many persons" the Rhus

* On the authority of Adair.

radicans, *Rhus Vernix*, and *Rhus Toxicodendron*, “ induce a peculiar and very troublesome vesication, “ which I have frequently removed, in a short time, by “ means of a mercurial wash.” I have employed, in these cases, an aqueous solution of the muriate of mercury, or corrosive-sublimate. Nothing that I have made use of has so effectually removed the disagreeable symptoms as this lotion. Its good effects are very speedily perceived. Many other applications are made use of, in various parts of the United-States. The principal of them are prepared from vegetables. That some of these do good, I shall not deny: but, compared to the preparation of mereury, which I have mentioned, they are very inert applications. Of the vegetables, I think I have employed none with such decided advantage as the juice (mixed with cream) of a native species of *Urtica*, or Nettle; perhaps the *Urtica pumila* of Linnæus.— “ It is said that the bark of one species (but I cannot tell “ you what species) has been found useful in intermit- “ tents.” Perhaps, it is the bark of the *Rhus glabrum*, or Smooth Pennsylvania Sumac. The juice of the Upland-Sumac (*Rhus glabrum*) is said to be excellent for removing warts, and also tetters. It is applied to the affected parts. This shows, that even this species, which is generally deemed innocent, possesses some active quality. Indeed, I am inclined to think, that all the American species of the genus *Rhus* are poisons to *some* constitutions. I am assured, that the *Rhus typhinum*, or Stagshorn-Sumac, has affected the skins of certain persons, in the same manner as the *Rhus radicans*, &c. Yet the *Rhus typhinum* is generally considered as an innocent species. In some parts of the United-States, the *Rhus glabrum* is called “ Indian Salt.” It is said that the Indians employed the saline powder which invests the berries, as a

condiment to their animal food. They also employ this substance as a mordant, or fixer, for the red colour with which they dye the quills of the porcupine. They use other mordants for the same purpose.—With great satisfaction, I refer the medical and philosophical reader of these *Collections*, to Dr. Thomas Horsfield's *Experimental Dissertation on the Rhus Vernix, Rhus radicans and Rhus glabrum*. This dissertation, which was published in Philadelphia, in 1798, reflects great honour upon the ingenious author, and even credit upon the University which gave it birth.

Page 26. **THE Zanthoxylum.** There are, in the United-States, at least two distinct species of this genus, viz. the *Zanthoxylum Clava Herculis* of Linnæus, and the *Zanthoxylum fraxinifolium* of Marshall. The latter is the species which is most common in the northern parts of the United-States, where it is known by the name of Prickly-Ash. The other species is more confined to the Southern states. This last, I doubt not, is the plant which Lawson alludes to, when he tells us, that the Indians cure the venereal disease “by a “Berry that salivates, as *mercury* does.” He adds, that “they use sweating and decoctions very much with it; “as they do almost on every occasion*.” I suppose that this is also the plant which Lawson calls Pelletory. “It is used (he says) to cure the tooth-ach, “by putting a piece of the bark in the mouth, which “being very hot, draws a rheum from the mouth, and “causes much spittle†.” Both species of *Zanthoxylum* appear to be well worthy of the attention of Ame-

* A New Voyage to Carolina, &c. p. 218. London. 1709.

† The same, p. 100.

rican physicians. Unquestionably, they are powerful vegetables.

Page 28. *EUPATORIUM perfoliatum*. A watery infusion of the leaves of this very common plant is a powerful, and not disagreeable, bitter. Examined by the common chemical tests, it appears to contain a great deal of the astringent principle. I think this promises to be a really useful medicine in the treatment of intermittent fevers. Some of our Northern Indians, who make use of it in these cases, call it by a name, which may be translated "Ague-weed."

Page 28. *SANGUINARIA Canadensis*. Dr. Schoepf makes mention both of the emetic and purgative power of the root of this pretty plant, which is extremely common in almost every part of the United-States. He says, a weak decoction of it is used in gonorrhoea, and against the bites of serpents, and in bilious diseases; that the juice is employed against warts; and (on the authority of Colden), that the powder of the root (in the dose of one drachm) is exhibited in jaundice*. I have been informed, that in some parts of New-England, a spirituous tincture of the roots is frequently exhibited, as a tonic bitter, in different diseases. A decoction of the roots is greatly recommended, as an external application, in the management of old ulcers. In this latter case, it is, perhaps, more worthy of a trial than in cases of jaundice.

Page 29. *ASCLEPIAS decumbens*. The *Asclepias decumbens* and the *Asclepias tuberosa* of Linnæus appear to me to be merely varieties of the same species.

Dr. Schoepf mentions a plant which, he says, is called in Maryland, Butterfly-root, and Pleurisy-root. He says, he has not seen the plant; but observes, that the name Butterfly-root seems to show, that it belongs to the class of Diadelphia*. I am pretty certain, that this plant is no other than the *Asclepias decumbens*. It is called Butterfly-weed, &c. because its flowers are visited by great numbers of butterflies.

Page 30. *CONVOLVULUS panduratus*. In Virginia, and some other parts of the United-States, the root of this plant has been much recommended in cases of gravel. It is used either in powder or in decoction. Is it constantly or considerably diuretic?

Page 32. "A SPECIES of Croton, or perhaps of "Stillingia," &c. This is one of the several medicines (and some of them are possessed of active qualities) which are employed by the Indians of Carolina, Georgia, and other southern parts of the United-States, as remedies for the cure of the venereal disease. It entered into the composition of a medicine, which was much employed by a Dr. Howard (of North-Carolina), as a cure for the yaws. This medicine contained, besides the supposed Croton, the vines, or climbing stems, of the *Bignonia crucigera*.—It is not the Northern Indians only who make use of the *Lobelia siphilitica* in the treatment of the venereal disease. This is also one of the articles in the *materia medica siphilitica* of the Cheerake, and other southern tribes.

Page 34. *POLYGALA Senega*. Since the beginning of the year 1798, I have employed a strong decoction

of this plant in several cases of cynanche trachealis, or hives. I am persuaded, that the Seneca is a very important medicine in the treatment of this common, and too frequently unmanageable, disease; and praise, in my opinion, is due to Dr Archer for his important discovery; for such I cannot but deem it. That the Seneca is a specific, or certain remedy, for the cure of the croup, I do not believe: but, from my own experience, I am led to repose more confidence in the use of this medicine than in any other. I have made use of a very strong or saturated decoction of the root. I have always given it in large quantities. It appears to be chiefly beneficial, when it occasions an expectoration of mucus, and when it proves emetic. It is also very useful by virtue of its purgative quality. But I have known it to occasion very plentiful stools, without benefiting the patient. Indeed, in the exhibition of the Seneca, I would rather wish to guard against *large* purging. I have sometimes treated my patients *almost* entirely with the Seneca. Even in such cases, I have perceived most unequivocal good effects from it. But I have, more generally, given, along with the Seneca, calomel, and sometimes calomel combined with ipecacuanha. I have not omitted the employment of the lancet (though this, in many cases of croup, is not absolutely necessary), and the use of blisters, or sinapisms, applied near to the seat of the disease. I am happy to close this short notice by observing, that several respectable physicians in Philadelphia inform me, that they have used the Seneca, with much advantage, in the disease in question.—For the particular manner in which Dr. Archer uses this medicine, I must refer the reader to his letter addressed to me, and published in the *Medical Repository* of New-York*.

I HAVE had no experience with the Seneca in cases of pneumonia. Notwithstanding what has been so frequently said concerning its great efficacy in this disease, I confess that I cannot believe, that it is a medicine adapted to the very first stage of pneumonia, while violent inflammatory symptoms are still present. After the liberal use of the lancet, it is highly probable, that the Seneca will be found a very important medicine. In the pleurisy, as it is called, which prevails in many of the low and marshy countries of the United-States, I do not doubt, that it has been of real use. This pleurisy, or pneumonia, is a true intermittent or remittent, attended with a local pain, either in the side or in the head. When the pain is principally confined to the head, the disease is called (a ridiculous name) “ the pleurisy in the head.” In either case, it is a complaint in which stimulating medicines (and such the Seneca is) have been exhibited with advantage. In cases of this kind, though bleeding is often necessary, it will not be sufficient to effect a cure. Even blisters fail to destroy the type of the disease. In my own hands, the Peruvian bark has been exhibited, during the remission of pain, with the happiest effect in preventing the recurrence of the violent paroxysm.

Page 37. *LOBELIA inflata*. This is a very common plant in many parts of the United-States. Its sensible qualities are much in favour of its medical powers. The leaves have a very acrid and pungent taste. An infusion of them, in boiling water, when suffered to stand for some time, is at first insipid to the taste; but it soon excites a very perceptible, and even considerable, sense of pungency upon the tongue, &c. which continues a good while. The taste is very similar to that of

tobacco. This species of *Lobelia*, in all probability, will be found a diuretic.

THE Cassena. This is also called Cussecna, and Yaupon, or YoPON. A very favourite inquiry, in which I have been engaged for several years, and in which I am still engaged, naturally leads me to mention, in this place, a very remarkable tradition which some of our Indian tribes preserve concerning this species of Holly. “ The Savages of *Carolina* (says Mr. Lawson, who is an author of much credit) “ have this tea in veneration, “ above all the plants they are acquainted withal, and “ tell you, the discovery thereof was by an infirm *Indian*, that laboured under the burden of many rugged “ distempers, and could not be cured by all their Doctors; so, one day, he fell asleep, and dreamt, that if “ he took a decoction of the tree that grew at his “ head, he would certainly be cured; upon which he “ awoke, and saw the *Yaupon* or *Cassena*-Tree, which “ was not there when he fell asleep. He followed the “ direction of his dream, and became perfectly well in “ a short time. Now, I suppose (continues our author), “ no man has so little sense as to believe this Fable; yet “ it lets us see what they intend thereby, and that it has, “ doubtless, worked feats enough, to gain it such an “ esteem amongst these Savages, who are too well versed in vegetables, to be brought to a continual use of “ any one of them, upon a mere conceit or fancy, without some apparent benefit they found thereby; especially, when we are sensible, they drink the juices of “ plants, to free nature of her burdens, and not out of “ foppery and fashion, as other nations are oftentimes “ found to do*.”—I do not, indeed, imagine, that

* A New Voyage to Carolina, &c. p. 221, 222

the Indians came to the first knowledge of the Cassena in the manner their tradition informs us. But, if I do not greatly mistake, a very interesting use may be made of this tradition: one which Mr. Lawson, in all probability little thought of. The Chinese preserve a tradition concerning Darma, the son of a King of the Indias, who was driven into China in the year 519, of the Christian era. Darma gave himself up entirely to religion, passing his days and nights, without sleep. At length, he fell asleep. To atone for this crime, the good man abscinded his genitals, the eye-lids of his eyes, and then enraged threw himself upon the earth, from which little shrubs now sprang up. These were the Tea, which has since spread its influence over more than half the globe. Darma now began to use the leaves of the new shrub, upon which his mind was affected with great joy, and he was restored to perfect health. He even ceased to be emasculate. These wonderful properties of the tea were made known by Darma to his disciples, upon which the leaves of the plant were received into universal use. Kæmpfer, from whose *Amœnitates* this story is taken, has given us a picture of Darma; but I presume the likeness could not be warranted*.

BETWEEN the tradition of the Chinese concerning the first use of their beloved tea, and the tradition of the Americans concerning the first use of the Cassena, there is such a remarkable coincidence, that we cannot well hesitate to believe, that the two stories are actually branches of a common stock. This will appear the more probable, when it is considered, that many of the

* I have not, at present, an opportunity of consulting Kæmpfer's work. I take the story from this celebrated naturalist, through the medium of Dr. Murray's *Apparatus Medicaminum*, &c. Vol. IV. p. 246, 247.

American tribes are very closely allied to the Chinese, Tartars, and Japanese, not only by their physical appearances, but also by their languages, their customs, &c*. Perhaps, the Indian tradition concerning the Cas-sena may even lead us to conjecture, at what time some of the Carolina and other savage tribes separated from their parental stocks, in Asia. It is possible that the word *Yaupon* is preserved by the Americans, in memory of the islands of Japan, from which some of them are descended.

Pages 38, 39. *SPIGELIA* Marilandica. In some parts of Carolina, &c. this invaluable plant is known (among other appellations) by the name of Snake-root. It is the *Unsteetla* of the Cheerake-Indians. Every part of the plant is possessed of the anthelmintic property, and accordingly in Carolina the physicians employ the whole plant; chiefly in decoction†. But the active power unquestionably resides more especially in the roots. It is the opinion of many persons, that the deleterious effects which occasionally occur from using this vegetable do not arise from any pernicious property inherent in the *Spigelia*, but from the root of a distinct plant which is often mixed with the *Spigelia*. I do not think this notion is entitled to any serious attention. The *Spigelia* is, without doubt, a poisonous and narcotic vegetable. It is, in all probability, by virtue of this poisonous quality, that it proves so beneficial in cases of worms. I am acquainted with a very intelligent physician, who

* New Views of the Origin of the Tribes and Nations of America. Appendix. p. 30, 31, 32. Philadelphia: 1798.

† Both Lining and Garden were generally in the habit of using the *Spigelia* in substance; and this is, unquestionably, the most precise method of employing it. In Philadelphia, an infusion or decoction of the plant is more commonly made use of.

in the exhibition of the *Spigelia* always deems it necessary, or proper, to persevere in the use of the medicine, until it produces some very decided effect upon the brain. I must confess, however, that I have often found it completely efficacious without observing, that it has occasioned the least inconvenience to the system. That it has sometimes done mischief, will not, I believe, be denied. Professor Bergius informs us, that he has known instances of convulsions cured by the *Spigelia*, although no worms were expelled by it*. Dr. Garden, speaking of this plant, says, “ It especially answers in continued
“ or remitting low worm-fevers, in which I use its decoction, adding a small proportion of the root of the
“ *serpentaria Virgin.* Its effects in abating the feverish
“ exacerbations are so considerable, that in these I consider it as the most powerful sedative†. It is an excellent
“ cellent attenuant‡.” I have been induced to take notice, in this place, of the observations of Bergius and Garden, because a pretty extensive use of the *Spigelia*, has now convinced me, that this medicine very often affords relief, and indeed effects a cure, in cases in which worms are supposed to be present, but in which none

* *Materia Medica e Regno Vegetabili, &c.*

† That the *Spigelia* is a sedative, taking this term in the sense in which it generally is, and always ought to be, employed, I do not believe, notwithstanding the very respectable authority of Dr. Garden, and the high authority of Dr. Darwin. This last mentioned author arranges our celebrated anthelmintic in his class or article of *Torpentia*. (See *Zoonomia*). With much more propriety, he might have arranged it in his second article, to which he has given the name of *Incitantia*. In fact, the effects which the *Spigelia* exerts upon the human system are very similar to those which *Datura* and other similar articles (confessedly stimulants) are known to exert. In particular, the operation of the *Spigelia* upon the brain, very decidedly, demonstrates its stimulant power.

‡ *Essays and Observations, Physical and Literary. Vol. III. Art. x. p. 149.*

are discharged. If I do not greatly mistake, this will be found a highly useful medicine in some of the febrile diseases of children, unaccompanied by worms, especially in the insidious remittent, which so frequently lays the foundation of dropsy of the brain.

Page 39. *THE* *Chenopodium anthelminticum*. This vegetable is also called Jerusalem-oak. The whole plant may be employed. Sometimes, the expressed juice is used, in the dose of a table-spoon full for a child, two or three years old. More commonly, however, the seeds, are employed. They are reduced to a fine powder, and made into an electuary with some syrup. Of this the dose for a child, two or three years old, is a table-spoon full, taken early in the morning. The patient is to be kept without nourishment for some hours after. After supper, a like dose is administered. It is often necessary to continue this course for several days. Great numbers of lumbrici are frequently discharged after the use of a few doses of the medicine.

Page 40. *COMMON* Tobacco. There is a peculiar mode of employing the leaves of the Tobacco in cases of worms, which I cannot avoid mentioning in this place, especially as it has, in many instances, produced very happy effects. The leaves are pounded with vinegar, and applied, in the shape of a poultice, to the region of the stomach, or other part of the abdomen. In consequence of this application, worms are often discharged, after powerful anthelmintics have been exhibited internally in vain. We ought not to be surprised at this effect of the Tobacco, since we know, that the same vegetable applied externally is often very efficacious in inducing vomiting. Accordingly, I have, for some years been in

the habit of applying Tobacco-leaves to the region of the stomach of persons who have swallowed large quantities of opium, and other similar articles, with the view to destroy themselves. It is well known, that in these cases the stomach is often extremely irritable, insomuch that the most powerful emetics have little effect in rousing that organ into action. Here, as an auxiliary at least, the Tobacco, used in the manner I have mentioned, is, certainly, very useful, and in many instances, ought not to be neglected.

Page 41. MELIA Azedarach. When I published the first edition of my *Collections*, I had not *any* experience in the use of this vegetable. Since that period, however, I have used it in several cases of worms, and always with advantage. Indeed, I am inclined to think, that the character of this new anthelmintic has not been too highly drawn. I will not assert, that it ought to be preferred to the Spigelia: for I have had much more to do with this, than with the Melia. The Melia is, unquestionably, a valuable anthelmintic, and ought to be introduced into general practice. I have employed the bark of the root, both in substance, and in the shape of a saturated decoction. In the case of an adult, who took the decoction in large quantities, *with the effect of discharging great numbers of worms*, it seemed to occasion some confusion of head, and trembling of the hands. These, perhaps, were accidental symptoms: but I am disposed, with the patient, to ascribe them to the medicine. The worm-cases in which I have found the Melia useful were cases of the common round-worm, or *Ascaris lumbricoides*. I have not had any opportunity of trying how far it is a remedy against the *tænia*, or tape-worm. But I am informed that, in Carolina, it has been used

with the effect of discharging great numbers of this species of worm. Should this prove to be the case, the *Melia* will be doubly entitled to our attention as an article of the *materia medica*.—It is not merely in cases of worms, that this vegetable has been found useful. Mr. Andrew Michaux, an industrious French botanist, informed me, that in Persia, where this tree grows spontaneously, the pulp which invests the stone of the fruit is pounded with tallow, and used as an “antisphoric,” in cases of *tinea capitis* in children.

Is the *Melia* a narcotic or poisonous vegetable? Its remarkable effects in destroying and dislodging worms renders this probable, but not certain: for many articles which, with respect to the human body, are entirely innocent, are known to be noxious to intestinal worms, and many other animals. Such is sugar, as has been demonstrated by the experiments of Redi, Carminati, and other writers. The case which I have alluded to renders the deleterious quality of this vegetable very probable. I may add, that in some parts of Carolina, the root is deemed poisonous. Horses and horned cattle, however, eat, with impunity, the leaves and berries. Certain species of birds (particularly the *Turdus migratorius*, or Robin, and the *Turdus Polyglottos*, or Mocking-bird), devour the berries in such large quantities, that after eating of them, they are observed to fall down, and are readily taken. Does not this circumstance render it probable, that the berries contain an intoxicating quality? This, however, I believe, is not the general opinion of the inhabitants of Carolina, who ascribe the condition of the birds merely to the circumstance of their having eaten so abundantly of the berries, that they injure entirely by distention. The ripe berries have a sweetish, but nauseous taste.

As the *Melia* is now completely naturalized to the states of Carolina and Georgia, it may not be amiss to close this article by observing, that the fruit of this vegetable is employed in Japan for furnishing an expressed oil, which grows hard like tallow, and is used for making candles*. May not our fellow-citizens, to the south, render it worth their attention to follow the example of the Japanese, in the instance I have mentioned?

IT remains for me to say a few words concerning two other native American plants, both reputed anthelmintics, which are not mentioned in the preceding Discourse. These are the *Galega Virginiana*, and the *Cleome dodecandra*?

THE *Galega Virginiana*, or *Virginia-Goats-rue*, is one of the most beautiful of the known North-American plants of the class of *Diadelphia*. It is very common in many parts of Pennsylvania, New-Jersey, &c. In Jersey, it is called *Cat-gut*, from the resemblance of some of its roots to the article of this name. A decoction of the roots is reputed a powerful anthelmintic. I have never used it. It may be observed, in this place, that, notwithstanding the general character of the class of *Diadelphia*, there are in this class some very active and even deleterious vegetables. It is somewhat in favour of the anthelmintic power of the *Galega Virginiana*, that some West-India species of the same genus are said to intoxicate and poison fish.

THE *Cleome dodecandra*? or perhaps *Cleome viscosa*, is a native of Pennsylvania, New-York, &c. It

* See Professor Thunberg's Travels in Europe, Africa, and Asia, &c. &c Vol. III. p. 228. English translation. London: 1795.

grows, in great abundance, in the neighbourhood of Albany. The whole plant has an extremely fetid smell. In some parts of the United-States, the root is employed as a remedy against worms. How far it is really useful with this intention, or by what power it acts, in destroying the worms, I do not know. I do not mention the anthelmintic virtue of the Cleome, merely on the authority of Dr. Schoepf*.

* See his *Materia Medica*, &c. p. 106

THE END.

MATERIA MEDICA.

PART SECOND.

— hanc etiam, MÆCENAS, aspice partem.

TO

JOHN COAKLEY LETTSOM. M. D.

FELLOW OF THE ROYAL SOCIETY OF LONDON, &c. &c.

DEAR SIR,

YOU have been pleased to express yourself favourably respecting the First Part of this little work. But it was not this circumstance that has led me to inscribe this Second Part to you. My inducements to do this, are of a higher and a different kind.

YOUR attentions to me, during my residence in London, in the year 1787, were those of a kind and affectionate friend, and cannot readily be forgotten. Nor have you withdrawn your attentions, notwithstanding the distance by which we are separated from each other.

SOME public tribute of respect is due from Americans to one who has so long, and on so many occasions, manifested his attachment to the United-States. The tribute which I now pay, is, indeed, a very feeble one: but it is paid in the warmth of feeling friendship.

A LARGE portion of respect is due from the world to those, who devote their fortune and their time to the promotion of science, and the extension of the godlike empire of benevolence. Your enemies will not deny

your merits in these respects. Your friends are incapable of disguising or withholding their sentiments, on the subject.

ATTACHED, as you are, to every branch of medical science; sensible, as you must be, of the imperfections of medicine, and ardently anxious for its further improvement, I will flatter myself, that you will peruse, with some satisfaction, these imperfect *Collections*, a mass of mere misshapen materials, out of which, at some future period, a part of a more regular AMERICAN MATERIA MEDICA may be constructed. Whether I shall live to take any part in the building, is extremely doubtful. The edifice is one, however, to which I look forward with an ardent zeal. A belief that I may *possibly* behold it, will serve to stimulate me to new and other labours, in this walk of medical science.

WITH the most sincere wishes for your health and happiness, and for the continuance of your useful labours and exertions, I remain,

My dear Sir,

Your obedient and

Obliged friend,

BENJAMIN SMITH BARTON.

Philadelphia, February 10th, 1804.

PREFACE.

I EXPERIENCE some degree of pleasure in being able to fulfil one of my literary promises. I present to the public, a SECOND PART of my *Collections for an Essay towards a Materia Medica of the United-States*. I am not very anxious about the fate of the work, and therefore, I shall not offer any formal apology for its imperfections. These will be readily perceived by the reader of any experience.

IMPERFECT, however, as is this Second Part, I hope the student of medicine and the young practitioner, for whom principally it is intended, will find it not less interesting than the preceding part. It contains additions to many of the articles which are mentioned in the former portion of the work, besides facts and observations concerning other articles, which are either entirely unnoticed, or merely named, there. Some of the newly-named articles have never before been noticed in any work relative to the *Materia Medica*: such are *Myrica cerifera*, *Prinos verticillatus*, *Hydrastis Canadensis*, *Frasera Walteri*, &c. How far these are worthy of the attention of physicians, must be left to others to determine.

To render the work somewhat more useful, I have interspersed it with occasional practical remarks. Some of these remarks, I am very ready to allow, are not necessarily introduced into the work. Such are those respecting Arsenic, and Digitalis. But it will be recollected, that I am not in pursuit of any thing like a methodical or regularly-digested work: and if any value be attached to the remarks, I shall cheerfully submit to be censured for my want of order and arrangement, in the management of my subject.

THE principal, and indeed only, object which I had in view in composing the First Part of this little work, has been, in some measure, accomplished. I WISHED TO TURN THE ATTENTION OF OUR PHYSICIANS TO AN INVESTIGATION OF THE PROPERTIES OF THEIR NATIVE PRODUCTIONS. Already have I had the satisfaction to perceive the useful tendency of my labours. Several of the vegetables which I had mentioned, in the *Collections*, have been examined with care and ability, by graduates in the University of Pennsylvania, who have thus put us in possession of a large body of useful information concerning those vegetables. It is unnecessary to mention, in this place, the titles of the dissertations to which I allude. Most of them are referred to in the present publication. Some of these dissertations reflect honour upon their authors; and must evince to the world, that an important branch of natural history and of medicine is making rapid advances among us. It is not one of the least pleasurable circumstances of my life, that I have been, in some degree, instrumental in directing the medical students of the United-States, to a few of those objects, which have since solicited their attention.

IN the present portion of the *Collections*, I have called the attention of the student to other objects of the American vegetable kingdom, concerning which I am anxious to receive more extensive and more correct information. My various pursuits do not permit me to enter minutely into an investigation of the properties of the articles which I mention. Indeed, I wish it to be understood, that some of these articles have never been employed by myself in practice; and, consequently, that my information concerning them has been derived from the experience of other persons. It is obvious, therefore, that I cannot always vouch for the truth or accuracy of the observations, which I detail, concerning the properties and effects of our vegetables. But neither could I have vouched for their truth and accuracy, even though I had related them from my own experience. For where is the candid physician who will not confess, that he often errs? Where is the physician who will not acknowledge, that in the course of his practice, he has often ascribed effects to medicines, which those medicines did not produce? EXTRAORDINARY (PROVIDED THEY BE SOLITARY OR RARELY OBSERVED) EFFECTS OF MEDICINES, IN THE CURE OF DISEASES, SHOULD BE RECEIVED BY THE PHYSICIAN, WITH NEARLY THE SAME HESITATION WITH WHICH THE PHILOSOPHIC NATURALIST OR HISTORIAN, RECEIVES MIRACLES INTO HIS COLLECTION OF WELL-ASCERTAINED FACTS.

The first of these is the fact that the
 Government has been unable to secure
 the necessary funds to carry out its
 policy of non-interference in the
 internal affairs of the country. This
 has been due to a variety of causes,
 including the fact that the Government
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 the internal affairs of the country.

THE following observations form a part of one of my Introductory Lectures. I have thought that they might, with some propriety, be introduced in this place.

“ IT is a trite observation, that every country possesses remedies that are suited to the cure of its peculiar diseases. The greater number of those who have adopted this opinion, have imagined, that the principal portion of indigenous remedies is to be found among the vegetables of the countries in which the diseases prevail.

“ THIS observation, in a limited degree; is undoubtedly well founded. But the universality of the position may, I think, be called in question. Man is subject to many diseases, both of body and of intellect, for the cure of which it would seem to be a part of the scheme of Providence, that he never shall discover remedies. Moreover, man is capable of subsisting, and actually does subsist, in certain portions of the earth, in which hardly a vegetable is seen, or can be made, to grow. Yet, in these situations man is not exempted from diseases: for diseases appear to be as necessarily a part of his essence or nature as the organs and the functions of his body.

“ BUT although we are not authorized, from an extensive examination of the subject, to conclude, that every country possesses native remedies, that are the best adapted for the cure of its peculiar diseases, still it must be admitted, that the observation is, in part, well founded. It was remarked by a writer*, who was more distinguished for the vivacity of his wit than for the so-

* Monsieur De Voltaire.

lidity of his judgment, that the intermittent fever prevailed in Europe, but that the Peruvian bark was found in South-America. This observation was intended as an exception to the general rule which I have mentioned. Perhaps, it was intended to arraign the benevolent order of Providence. But the observation can have no weight with physicians who know, that the intermittent fever is the disease of almost every climate, and that the Peruvian bark is not the only remedy that is capable of subduing this disease.

“ WITHOUT any regard, however, to the rule that, in general, the remedies for diseases exist in the native countries of such diseases, it may safely be conjectured, judging from the discoveries which have already been made, in the term of three hundred years, that there are no countries of the world from which there is reason to expect greater or more valuable accessions to the *Materia Medica*, than the countries of America. The different species of *Cinchona*, or Peruvian bark, the *Quassia*, the *Simarouba*, the *Guaiaicum*, the different kinds of *Jalap* and of *Ipecacuanha*, the *Polygala Senega*, the two species of *Spigelia*, not to mention many other valuable medicines, are all natives of America; and most of them have not, hitherto, been found in any other portion of the world.

“ IT has often been said, that the *Materia Medica* is already crowded with a great number of inert, useless, or pernicious medicines. This I think is strictly true; and it is certainly, high time to banish from the shops many of the medicines, or articles, which they contain. This fullness of the *Materia Medica* ought not, however, to make us relax in our inquiries into the properties of the

vegetables of our own and of other countries. No candid physician will deny, that he often meets with cases in which the choice of active medicines is a matter of consequence. So various are the constitutions of our patients; so infinitely various are the forms under which diseases present themselves, that it becomes absolutely necessary to know, and to possess, a great number of different medicines, even of those which are endowed with a common assemblage of properties.

“ I AM not ignorant, that there are some persons, who consider the science of medicine as a science of extreme simplicity; who believe, or affect to believe, that in the treatment of diseases, we have arrived at something like the *ultimatum* of perfection. We are already, say these persons, in possession of all the means that are necessary for the alleviation, or for the cure, of our diseases. It is needless, then, to ransack nature any further.

“ IN opposition to such an opinion as this, it will be sufficient to hint at the recent date of the introduction of some of the most important articles of medicine into the *Materia Medica*; or at the recent date of our acquaintance with the new properties and powers of those which have long been known. The properties of Mercury could hardly be said to be known until the general spread of the venereal disease through Europe, towards the end of the 15th and the beginning of the 16th centuries. Nay not more than half the invaluable powers of this herculean medicine were discovered before the middle of the last century; and I cannot hesitate to believe, that many of its properties are still unknown. The Peruvian bark, the Ipecacuanha, the Jalap, the Tobacco, the Guaiacum, and many others, were not even named

to the physicians of the old-world, until several years after the discovery of America, in 1492. Some of the most valuable properties of Opium, such as its use in the treatment of low nervous fevers, were not detected before the middle of the eighteenth century; and of the *Digitalis*, one of the most common plants of some of the most cultivated countries of Europe, little except the fact of its being an extremely deleterious plant, was ascertained previously to the excellent publication of Dr. Withering. These facts, certainly, show us, that we have no reason for believing, that the list of important articles of the *Materia Medica* is completed; or that we are fully acquainted with all the properties of those which have been known for hundreds of years. On the contrary, they render it highly probable, that hitherto, we have discovered but a very small part of those vegetable and other remedies, which Providence, in the fullness of his benevolence, has scattered over the earth.

“ IN conducting our inquiries into the properties of the medicinal vegetables of our country, much useful information may, I am persuaded, be obtained through the medium of our intercourse with the Indians. Let not this observation induce any of you to suppose, that I am of opinion, with many travellers, and with some writers on the *Materia Medica*, that the savages of North-America are in possession of absolute specifics for all, or for any, of their diseases. I am too much of a skeptic in matters that regard the science of medicine to admit of the existence of any medicines that are strictly entitled to the name of specifics; and my inquiries concerning the diseases and remedies of our Indians have convinced me, that among these people the art of medicine is truly in a shapeless and an embryo state.

“ IT is, nevertheless, certain that some of the rudest tribes of our continent are acquainted with the *general* medical properties of many of their vegetables. Like the rest of mankind, they are subject to diseases; and like all nations in the savage forms of society, many of their diseases are violent. Nor, notwithstanding what has been repeatedly asserted to the contrary, are the diseases of those North-American tribes with whom we are the best acquainted either simple or few. The diseases of our Indians, even of those tribes who have been the least influenced, or corrupted, by their intercourse with more civilized nations, are numerous, and often present themselves in the mixed or complicated forms which have been supposed to be, in a great measure, confined to nations in the more improved and luxurious stages of society. It is, I believe, a truth, that the medicines of savage and other uncultivated nations are, in general, medicines of an active kind. Thus, if we except that farrago of articles which are employed by our Indians as supposed remedies against the bites of venomous serpents*, we shall find that the *Materia Medica* of these people contains but few substances as inert as many of those which have a place in our books on this science, and on other parts of medicine. The astringents and tonics, which they employ in the treatment of intermittent fevers, are the barks of some species of *Cornus*, or Dogwood, such as *Cornus florida* and *Cornus sericea*, both of which are found to possess properties very nearly allied to those of the *Cinchona*, or Peruvian bark: their purgatives are different species of *Iris*, or Flag, the root of the *Podophyllum peltatum*, or May-apple; the bark of the *Juglans cinerea*, or Butter-nut,

* See Transactions of the American Philosophical Society. Vol. iii. No. xi.

and some others: their emetics are the *Spiræa trifoliata*, or Indian Physic; the *Euphorbia Ipecacuanha*, Sulphat of Iron, or Copperas, and many others: their sudorifics are the active *Polygala Senega*, or Seneca snake-root, the *Aristolochia Serpentaria*, or Virginia snake-root, the *Eupatorium perfoliatum*, or Thorough-wort, the *Lobelia siphilitica*, &c: their anthelmintics are the the *Spigelia Marilandica*, or Carolina Pink-root, the *Lobelia Cardinalis*, or Cardinal-Flower, &c.

“ FROM this list, which it would be an easy task to render more extensive and more perfect, it must be obvious, that the Indians of North-America are in possession of a number of active and important remedies. It will not be denied, however, that they do not always apply their remedies with judgment and discernment. But what treasures of medicine may not be expected from a people, who although destitute of the lights of science, have discovered the properties of some of the most inestimable medicines with which we are acquainted? Without mentioning the productions of South-America, let it be recollected, that it is to the rude tribes of the United-States that we are indebted for our knowledge of *Polygala Senega*, *Aristolochia Serpentaria*, and *Spigelia Marilandica*.

“ IT is observed by De Pauw, that Botany is the only science that is known to savage nations*. This observation is more just than many others that are to be found in the writings of this singular author. But it would have been still more just, if, instead of Botany, the term *Materia Medica* had been employed. Savages,

* *Recherches Philosophiques sur les Americains*, &c. Tome 1

in general, know nothing of the sexual differences of vegetables; their classification, &c. circumstances intimately appertaining to the science of Botany*. But a knowledge of the obvious habit or deportment of their plants, and of the general properties of these plants, is, indeed, a very prominent feature in the description of many savage nations: it is, perhaps, more especially a prominent feature in the description of the savage nations of North-America.

“ BUT it is only with their general properties that they are acquainted. For the discovery of these the uncultivated reason of man, even the wild instinct of the animal, are often sufficient. It is the province of science; it is the duty of those who attach themselves, with a well-guided ardour, to the amiable pursuits of medical and natural science more especially, to investigate, with a laborious and accurate attention, the whole of the properties of the various natural objects by which they are surrounded. The illiterate Indians of Loxa, in Peru, were not ignorant, that the Peruvian bark cured intermittent fevers: but it was reserved for men of science, aided by the ample experience of many years, to discover the numerous other properties of this important, this indispensable, article of the *Materia Medica*.”

* If, however, we may depend upon the observations of Dr. Forster, the inhabitants of Otaheite, and other islands in the Southern Pacific Ocean, are “ acquainted with the sexual system, especially in the coco-palm.” These people have also learned to designate by distinct and often appropriate names, the bracte and various other parts of the plant, in a manner so correct, that it must be acknowledged, that the dawn of Scientific Botany has commenced among them. See observations made during a Voyage round the world. &c. p. 498, 499, 500. London: 1778. 4to.

COLLECTIONS, &c.

SECTION I. ASTRINGENTS.

GERANIUM maculatum*. This is, certainly a vegetable entitled to the attention of American physicians. In Kentucky, where it is called "Crow-foot," it has been collected for the Tormentil† of the shops. In some of the north-western parts of the United States, it is known by the name of *Racine à Becquet*, after a person of this name. The western Indians say it is the most effectual of all their remedies for the cure of the venereal disease. I have not, however, been able to learn, in what form or stage of this disease they employ it. I doubt not it would be found very useful, exhibited internally, in cases of old gonorrhoea. In such cases, the internal astringents are too much neglected.

AN aqueous infusion of the root forms an excellent injection in gonorrhoea. In old gonorrhoea, and in gleet, a more saturated infusion may be employed, either alone, or combined with a portion of the sulphat of zinc, or white vitriol.

* See Collections, &c. Part First. pages 8 & 45.

† Tormentilla erecta of Linnæus.

BOTH the simple sulphat and the oxy-sulphat of iron strike a deep violet colour with the infusion of the root in water.

HEUCHERA Americana*. This is the Heuchera Cortusa of Michaux†, who has unnecessarily changed many of the long-received names of American plants. This Heuchera is one of the articles in the Materia Medica of our Indians. They apply the powdered root to wounds, and ulcers, and cancers.

OF the *Pyrola umbellata* I have made no mention in the first part of this work. It is a very common North-American plant, and is sometimes called Ground-Holly, but is much better known (at least in New-Jersey and in Pennsylvania) by the name of *Pippsisseva*‡, which is one of its Indian appellations. In the sexual system of Linnæus, it belongs to the same class and order (*Decandria monogynia*) as the *Uva Ursi*. It also belongs to the same natural assemblage of plants as the last mentioned vegetable: viz. the order *Bicornes* of Linnæus, and the order *Ericæ* of Mr. de Jussieu. The two plants are, unquestionably, nearly allied to each other in respect to their botanical affinity, as well as in their medical properties.

THE *Pyrola* is considerably astringent, and the quantity of astringency appears to be nearly the same in the leaves and in the stems. Hitherto, it has not greatly excited the attention of physicians. But I think it is worthy of their notice. A respectable physician, in East-Jersey, informed me, that he had employed this plant,

* See Part First. Page 9.

† *Flora Boreali-Americana*, &c. Tom. i. p. 171.

‡ Perhaps, *Phipsesawa*.

with manifest advantage, in the same cases in which Uva Ursi has been found so useful. This looks very probable: for it would seem, from many facts, that the lithontriptic powers of the Uva Ursi are, in no small degree, owing to the astringent quality of this plant: and, “ perhaps, upon the whole (as an eminent practitioner* “ has observed), we shall find it no better than other “ vegetable astringents; some of which have long been “ used by the country people, in gravelly complaints, “ and with very great advantage: though hitherto unno- “ ticed by the regular practitioners†”.

THE Pyrola, as I am informed by my pupil Dr. John S. Mitchell, has been used, with good effect, in some cases of intermittents. In one case, its diuretic operation was evident. “ The urine discharged was almost “ black. It appeared as if a few drops of a solution of “ the sulphat of iron had been put into an astringent “ infusion‡.” This was a solitary occurrence, and one which I am unable to explain.

FOR more ample information concerning this vegetable, I beg leave to refer the reader to Dr. Mitchell’s Inaugural *Essay on the Arbutus Uva Ursi, and the Pyrola umbellata and maculata* of Linnæus§. Prefixed to this

* Dr. Withering. See A Systematic Arrangement of British Plants, &c. Vol. II. p. 391. London: 1801.

† I cannot forbear mentioning in this place (at the risk, perhaps, of exposing myself to the ridicule of the mere theorist), that the *nuclei*, or kernels, of the common American Hazlenut (*Corylus Americana*) have been found very useful in affording relief to several persons labouring under nephritic, and perhaps calculous affections. I mention this fact on the respectable authority of my friend, Dr. Frederick Kuhn, of Lancaster, in Pennsylvania. Do these kernels act solely by virtue of their astringent quality?

‡ Letter to me, dated Sunbury, August 8th, 1803.

§ Philadelphia: 1803.

dissertation, there is a good figure of the *Pyrola umbellata*.

THE *Myrica cerifera*, or Candle-berry Myrtle, deserves to be mentioned in this place. This is a common shrub in many of the maritime parts of the United-States, as in New-Jersey, Delaware, &c. This is, unquestionably, a very powerful astringent, and as such has been employed by the country-practitioners of the United-States. A decoction of the bark of the root is employed, sometimes alone, and sometimes in combination with the bark of the root of Persimmon, or with the bark of the Black-Alder, which I am afterwards to mention. The simple or combined decoction of the *Myrica* has been used, with much advantage, in dropsical affections succeeding to intermittents, particularly in the peninsula of Delaware, where dropsies, in various shapes, are, perhaps, more common than in any other part of North-America, within the same latitudes. The root of the *Myrica* has likewise been found useful in the treatment of hæmorrhages from the uterus, &c. It was remarked by an old physician*, who had much experience in the use of this vegetable, that it often acted as a gentle purgative.

SEVERAL varieties of the *Myrica cerifera* are described by the botanists. That of which I have been speaking is distinguished by the circumstance of its having broader leaves, and larger berries, than the others. It is the variety marked β and named *media*, in the *Flora Boreali-Americana* of Michaux†. I cannot, however, assert, that as an astringent, this is to be preferred to the other varieties.

* Dr. Matthew Wilson.

† Tom. 11. p. 228

THE *Myrica Gale*, called Sweet-Willow, or Dutch-Myrtle, and also American Bog-Gale, is likewise a native of the United-States. But this, to which useful qualities are ascribed, by Linnæus and other writers, seems less worthy of our notice than the above-mentioned species.

THE *Prinos verticillatus** of Linnæus is a very common shrub in many parts of the United-States. It is especially common in the maritime parts of the union, at least as far south as North-Carolina; and is generally found to grow in the greatest perfection in swamps, or marshy places. It is the *Prinos Gronovii* of Michaux. To the inhabitants of New-Jersey and Pennsylvania, it is well known by the name of Black-Alder. If I do not mistake, however, the same appellation has been bestowed upon another American shrub, the *Ilex? Canadensis* of Michaux. Care must be taken to distinguish our *Prinos* from the Swamp-Alder, or Candle-Alder, which is the *Betula serrulata* of Aiton.

THE bark of the *Prinos verticillatus* is manifestly astringent. It is, likewise, considerably bitter, and along with these properties there is united a degree of pungency. The berries, which are of a fine red colour, greatly partake of the bitter quality, and if infused in wine or brandy, might be employed, with advantage, in many of those cases in which bitters, in a vinous or spirituous menstruum, are exhibited by physicians. But it is especially the bark of the shrub that seems entitled to our attention.

THIS has long been a popular remedy in different parts of the United-States. But as yet, it has been

* Marshall calls this Virginian Winter-Berry

greatly neglected by the regular physicians, only a few of whom (so far as I can learn) have been in the habit of employing it. This bark possesses the common properties of the vegetable astringent and tonic medicines; and, accordingly, it has been used as a substitute for the Peruvian bark, in intermittents, and in other diseases. It is employed both in substance and in decoction, most commonly, however, in the latter shape. It is supposed to be especially useful in cases of great debility unaccompanied with fever; as a corroborant in anasarctous and other dropsies, and as a tonic in cases of incipient sphacelus, or gangrene. In this last case, it is, unquestionably, a medicine of great efficacy. It is both given internally, and employed externally as a wash. On many occasions, it appears to be more useful than the Peruvian bark. It ought to have a place in the shops, and in the Pharmacopœia of this country, WHEN SUCH A DESIDERATUM SHALL BE SUPPLIED.

IN making decoctions or infusions, for the different purposes which I have mentioned, the berries are often mixed with the bark.

THE *Orobanche Virginiana*, or Virginian Broomrape, is a very common plant in many parts of North-America. Michaux says that it grows from Canada to Georgia. It is generally, if not always, found under the shade of the American Beach-tree (*Fagus ferruginea*)*. Hence one of its names, in Pennsylvania, viz. "Beach-drops." But it is much more generally known by the name of Cancer-root†.

* Michaux entirely restricts its habitation to the root of the Beach: "In radice Fagi nec aliæ plantæ." *Flora*, &c. Tom. II. p. 26.

† See *Elements of Botany*, &c. Part third. p. 80.

EVERY part of this plant is considerably astringent. This astringency is evinced not only by the taste of the plant, but also by subjecting it to chemical examination. The infusion or decoction assumes an ink-like colour, on adding to it a solution of the sulphat of iron, or copperas. But along with the astringency, especially in the recent plant, there is combined a peculiar and extremely nauseous bitterness. Judging by the taste, we should not hesitate to say, that the Cancer-root is a vegetable endowed with considerable powers. It must be confessed, however, that these powers are much less obvious in the dried than in the recent vegetable.

SOME of the medical powers of this plant have long been known to the people of the United-States. It has been celebrated as a remedy in dysentery. There are, I think, cases of dysentery in which much advantage might be expected from the exhibition of a medicine possessed of the powers of the Cancer-root. But this vegetable has acquired its principal reputation as a remedy in cancerous affections. How far it is entitled to any character in such affections, I am unable to say, having never employed it in a case of genuine cancer. But it is proper to mention, that the Orobanche has been supposed, by many persons, to have formed a part of the celebrated cancer-powder of Dr. Hugh Martin, whose success in the management of many cases of this dreadful disease, has been acknowledged by the regular practitioners of Philadelphia, &c.

As early as 1785, at which time I was a student of medicine, I was informed, by the people inhabiting the western parts of Pennsylvania and Virginia, that this Orobanche formed the principal part, if not the whole, of Martin's powder. It was even said, that Martin, who

had passed some time at Fort-Pitt, was known to have collected the plant for the purpose. I believe it to be a fact sufficiently established, that the basis (or perhaps rather the most active part) of Martin's powder, was the oxyd of arsenic. This has been shown by a chemical examination of the powder*, and by other circumstances nearly as decisive. Thus comatose affections (such as are known to be induced by arsenic) have been induced by the powder of Martin, even when externally applied in cancerous ulcers. A case of this kind came under the notice of a physician† in Philadelphia. The patient seemed to fall a victim to the application of the medicine.

BUT the powder of Martin did not consist entirely of the oxyd of arsenic. This is certain. I believe it to be certain also, that he combined with the arsenic, a vegetable matter; and from what has been said, it would seem not entirely improbable, that this vegetable was the *Orobanche Virginiana*.

IT may be said, and it is not impossible, that Martin added the vegetable matter merely to disguise the arsenic, reposing, at the same time, *all* his confidence in the arsenic alone. I think it more probable, however, that the superior efficacy of Martin's powder, and of the powders in the hands of other empirical practitioners, has been, in part, owing to the addition of something to the arsenic. If there be *no* foundation for this suspicion, how has it happened, that in the management of cancers, the empirical practitioners have often succeeded so much better with their medicines than the regular physicians

* See Dr. Rush's paper on the subject, in the Transactions of the American Philosophical Society. Vol. II. No. xxvi.

† Dr. Adam Kuhn, from whom I received the fact.

have done? Both use arsenic. Some of the cancer powders, employed by empirics, in Europe, are known to have been composed, in part, of arsenic and a vegetable matter. The celebrated powder of Plunket was made up of arsenic, the root of a species of *Ranunculus*, or Crow-foot, and sulphur.

WHATEVER may have been the vegetable which Martin used in combination with arsenic, it is certain, that the powder of the *Orobanche*, or Cancer-root, has been of great service (in Philadelphia, &c.) externally applied to obstinate ulcers, some of which had resisted the applications that are commonly made use of in such cases. It would be well to try the effects of this vegetable in those dreadful ulcerations (by some writers deemed cancerous), which are too frequently the consequence of the use of mercury, when it has been given in large quantity. Cases of the kind I allude to, are recorded by Dr. Donald Monro, Mr. Adams, in a valuable work*, and other writers. I have had occasion to see some ulcerations of the same kind in Philadelphia. They often refuse to yield to stimulating or to mild applications.

WITH the view to encourage further inquiry into the nature and properties of the *Orobanche Virginiana*, I may here mention, that one of the European species of this genus, the *Orobanche major*, or Greater Broom-rape, is a very powerful astringent, and is said to have been found useful, externally applied, in cases of ulcers. This I mention on the respectable authority of Sir John Floyer†. The activity of the European plant may even be

* Observations on Morbid Poisons, Phagedæna. and Cancer, &c. p. 65, &c. London: 1795.

† *Pharmacopæias*, or The Touchstone of medicines, &c. p. 159. London: 1687.

inferred from the fact mentioned by Shreber, that cattle do not eat it. We must pay, perhaps, no regard to certain other powers which have been ascribed to it. "Dicunt autem facere, ut taurum vacca appetat*." I have not been able to learn whether the *Orobanche Virginiana* is eaten by the horned cattle, or other quadrupeds.

SECTION II. TONICS.

I SHALL open this section with a few notices concerning some indigenous Bitter vegetables, which seem well entitled to the attention of physicians. At the same time, I avail myself of an opportunity of observing, that the tonic quality of vegetables does not so much consist in bitterness as some celebrated writers† have imagined. It will not be denied, that many of the bitters (even those which have their bitterness unmixed with astringency) are some of the most useful tonics with which we are acquainted. But, it must be allowed, that certain other bitter vegetables have but a feeble claim to the character of tonics. And it would not be a difficult task to show, that some of the most valuable tonics are (strictly speaking) neither bitter nor astringent. It is not easy, therefore, to say, in what the tonic property of medical agents does especially consist. It will hardly be doubted, however, that every tonic exerts a stimulant effect upon the system, though, on many occasions, it may be difficult or impossible to measure the intensity or degree of the

* Alberti v. Haller *Historia Stirpium Indigenarum Helvetiae inchoata* Tom. i. p. 130.

† Dr. Cullen, particularly. See his *Treatise of the Materia Medica*. Vol. I. p. 55, &c.

stimulus applied, merely by an attention to the pulse. THE PULSE IS OFTEN A VERY UNCERTAIN OR FALLACIOUS TEST OF THE OPERATION OF STIMULANT AGENTS.

THE *Zanthorhiza apiifolia** of L'Heritier, or Parsley leaved Yellow-root, is a native of North and South Carolina, and Georgia. It is a small shrub, which flowers early in the spring. This vegetable has long been known; but it is only within a very few years that it has excited the attention of physicians.

THE bark of the root is intensely bitter; I think more so than the root of Columbo. This bitter property pervades the wood of the root, as well as the bark: but in the former it is, unquestionably, weaker than in the latter. The bark of the stem is also bitter, perhaps, but little less so than that of the root. The sensation of bitterness that is left in the mouth, when the bark has been chewed, is very durable and adhesive. It continues, to a considerable degree, even after the mouth has been repeatedly washed with cold water. There does not seem to be combined with the bitterness, any very considerable degree of a foreign acrimony. However, upon holding the bark for some time in the mouth, it evidently communicates to it a sense of pungency, or acrimony. I think there is less of this pungency in the bark of the stem than in that of the root.

THE infusion of the bark of the root, in hot water, had a disagreeable and somewhat virose smell. From this, however, it ought not to be inferred, that the *Zanthorhiza* is a deleterious plant. A similar smell belongs

* *Zanthorhiza simplicissima* of Marshall, and *Zanthorhiza tinctoria* of Woodhouse. The specific name *apiifolia* should be preferred.

to many other bitter vegetables, even to some of those which appear, from the experience of many ages, to be entirely innoxious. I am not ignorant, indeed, that a poisonous quality has been supposed to be necessarily attached to every bitter. I cannot help thinking, that this theory has been the result of a very limited view of the subject of bitters, and of their effects. The evil effects of the Portland powder, and other similar articles, in gouty affections, have, I am persuaded, been greatly exaggerated by Dr. Cullen*, and some other writers: and the real bad effects of these articles must, perhaps, be ascribed to the long-continued repetition of a stimulant powder, by which the energies of the system are wasted, and irregularities occasioned in the circulation of the blood.

THE Zanthorhiza, so far as we are enabled to investigate its properties, appears to be one of the most pure and unmixed bitters. The addition of the sulphat of iron to an infusion of the bark of the root in boiling water did not produce the least perceptible change in the colour of the infusion, even when the two articles were suffered to stand for a considerable time, after the addition. In this respect, as well as in others, it appears to make a very near approach to the Columbo. But I am inclined to think, that the Zanthorhiza is the least pure of the two†.

To the saliva, the bark, when it is chewed, communicates the most beautiful yellow colour. The infusion in hot water is also very fine. If its colour could be fixed, the Zanthorhiza would be one of the most important of all the yellow *plantæ tinctoriæ* with which we are acquainted.

* A Treatise of the Materia Medica. Vol. II. p. 64, 65, 66.

† See Elements of Botany, &c. Explanation of the Plates. Page 26

HITHERTO, the *Zanthorhiza* has been but little employed in practice. Some experiments have, however, been made with it*, and these are calculated to show, that it may be advantageously employed, and that it ought to have a place in the shops. Although less pure than Columbo, I believe it is, in certain cases, to be preferred to that celebrated bitter. Professor Woodhouse, who seems to have paid more attention to this vegetable than any other person, has used it with very good effect, in several of those cases in which the bitter medicines are proper.

FOR a correct representation of the *Zanthorhiza*, see the *Medical Repository*, already referred to, and also, my *Elements of Botany*†.

IN the First Part of these *Collections*‡, I have made mention of the *Hydrastis Canadensis*, commonly called “Yellow-root.” This is a very common vegetable in various parts of the United-States; particularly in the rich soil adjacent to the Ohio and its branches, in the western parts of Pennsylvania and Virginia; and in Kentucky. The root of this plant is a very powerful bitter: perhaps not less so than that of the *Zanthorhiza*. To the taste, however, it is unquestionably more pungent than the *Zanthorhiza*. When held between the lips, it even excites a very considerable sense of pungent heat. The dried root has a strong and virose smell, very similar to that of the *Zanthorhiza*, but stronger. The infusion in hot water, smells very like the infusion of *Zanthorhiza*. The two infusions taste a good deal alike.

* See *Medical Repository*. Vol. v. No. II.

† Plate XII.

‡ Page 9. See, also, *Elements of Botany*, &c. Part Third, p. 70.

ON adding a solution of the sulphat of iron to an infusion of the root of the Hydrastis, I was not able to discover the least indication of astringency. This further shows the affinity of the two plants to each other. I may add, that although they do not both belong to the same artificial subdivision in the sexual system, they are both near relations in a family of Nature's making. They belong to De Jussieu's order *Ranunculaceæ*, which may be considered as a pretty natural assortment of vegetables.

THE Hydrastis is a popular remedy in some parts of the United-States. A spirituous infusion of the root is employed, as a tonic bitter, in the Western parts of Pennsylvania, &c., and there can be little doubt, that both in this, and in other shapes, our medicine may be used with much advantage. An infusion of the root, in cold water, is also employed as a wash, in inflammations of the eyes. In these cases, it is well known, that some of the bitter medicines, such as ox-gall, fish-gall, and others, have long maintained some character; and some of them, I believe, are entitled to the praises which have been bestowed upon them.

THE root of the Hydrastis supplies us with one of the most brilliant yellow colours, with which we are acquainted. When it shall be subjected to proper experiments, I doubt not, it will be found a most valuable dye-plant, and well worthy of a place in the manufacturing houses.

THE *Gentiana lutea*, or common Gentian of the shops, is said to be a native of the United-States*. This, per-

* Kalm.

haps, is doubtful. But it is certain, that several of the indigenous species of this genus are intense and pretty pure bitters, but little, if at all, inferior to the species just mentioned*.

THE *Gentiana Centaurium*†, or Lesser Centory, is found native within the limits of the United-States. This, however, is not the plant which is called Centory, or "Centry," in Philadelphia, &c., where it is so commonly employed both by physicians, and as a domestic remedy in almost every family.

THE Centory to which I allude is the *Chironia angularis* of Linnæus. This is a beautiful annual plant, and grows abundantly in many parts of the United-States, as in New-York, Pennsylvania, Virginia, &c. Every part of the plant is intensely bitter, in which respect it differs from the *Gentiana Centaurium*, the blossoms of which are nearly insipid‡. In other respects, it is closely allied to the Lesser Centory, the properties of which are well known, and established by the experience of physicians, for many hundred years. In no respect, that I can perceive, is the *Chironia* inferior, as a bitter, to the *Centaurium*. As a much more common plant than this latter, it may, without any injury to our patients, supersede its use in the practice of American physicians, most of whom, if I do not mistake, have supposed, while they were employing the *Chironia angularis*, that they were using the *Centaurium*, of the European writers on the *Materia Medica*. The Chi-

* See Collections, &c, Part First, page 15.

† It is the *Chironia Centaurium* of Curtis, Withering, Smith, and other botanists.

‡ Lewis.

ronia is mentioned by Dr. Schoepf, who speaks of it as aromatic and bitter, and mentions the infusion as being useful in fevers*. Indeed, I believe that no bitter has been more generally prescribed in the United-States, in febrile and other affections, than this common American plant, especially since the memorable year 1793, when it was much employed in certain stages of yellow-fever; and in which I believe it was very often used with much benefit.

THE *Frasera Caroliniensis* of Walter† (*Frasera Walteri* of Michaux‡) is nearly allied, in botanical habit, to the genus *Gentiana*. This plant, which is a native of the states of New-York, Carolina, &c., is furnished with a large tuberous root, of a yellow colour, which promises to be little inferior, as a bitter, to the *Gentian* of the shops, and for which, I suspect, it has sometimes been mistaken.

I CANNOT conclude this part of the subject of the Tonics, without observing, that the countries of the United-States are so rich in bitter vegetables, that there can be no *necessity* for having recourse to the foreign articles of this class; especially when such articles are only to be procured at a high price: a circumstance which not unfrequently becomes a source of the adulteration of medicines, in this and in other countries.

* *Materia Medica Americana*, &c. p. 27. Schoepf calls the plant, Wild-Succory.

† *Flora Caroliniana*, &c. p. 87, 88.

‡ *Flora Boreali-Americana*, &c. Tom. i. p. 96, 97

IN the First Part of this work, I made some mention of two American species of Cornel, or Dog-wood, the *Cornus florida* and *Cornus sericea**. Since the publication of that part, these two vegetables have engaged the attention of an ingenious graduate in the university of Pennsylvania, Dr. John M. Walker, to whom we are indebted for much interesting information concerning them†. An analysis of the dissertation would not, I presume, be uninteresting to my readers. But I cannot undertake the task in this place. I think it a duty, however, to mention some of the author's experiments and observations.

THE taste of the barks of the two Cornels, and that of the Peruvian bark, is nearly similar, " though somewhat more bitter and astringent in the Corni than the bark: the former when retained in the mouth some time, only impart to the tongue these two tastes, along with a pleasant warmth; whereas when the latter is retained the same length of time, along with this bitterness and astringency, it imparts an indescribable taste, which will be easily recognised by every one who has taken the bark."

DR. WALKER's experiments show, " that the *Cornus florida* and *sericea*, and the Peruvian bark, possess the same ingredients, that is gum, mucilage, and extract, which last contains the tannin and gallic acid, though in different proportions. The Florida possesses most of the gum, mucilage, and extract; the *Sericea* the next, which appears to be an intermediate be-

* See pages 11, 12, 47.

† An Experimental Inquiry into the similarity in virtue between the *Cornus florida* and *sericea*, and the *Cinchona officinalis* of Linnaeus, &c. &c. Philadelphia: 1803.

“ tween the Florida and Peruvian Bark; while the latter
 “ possesses most of the resin. Their virtues appear
 “ equally similar in their residence. The extract and
 “ resin possess all their active virtues. The extract ap-
 “ pears to possess all their tonic power. The resin,
 “ when perfectly separated from the extract, appears to
 “ be purely stimulant*.”

OUR author has established the stimulant power of the two Cornels, by actual experiments upon the healthy system. By the use of these medicines, the pulse was often rendered fuller and stronger, and always quicker†.

THE bark of the *Cornus sericea* forms a beautiful tincture with proof spirits. This is deserving of a place in the shops, as are, also the powdered barks of both species.

I CAN add but little, from my own experience, concerning the application of these two species of *Cornus* to the cure of diseases. I believe, however, that it may, with entire safety, be asserted, that as yet we have not discovered within the limits of the United-States, any vegetables which have been found so effectually to answer the purpose of the Peruvian bark, in the management of intermittent fevers, as the *Cornus florida* and *Cornus sericea*.

In an intermittent fever, which prevailed in West-New-Jersey, about twenty-four years ago, the bark of the *Cornus florida* was found more useful than the Pe-

* An Experimental Inquiry, &c. page 29.

† Ibid. page 46.

ruvian bark. It was used in the shape of a decoction*. I must candidly confess, however, that I have heard of more instances of the failure of this Cornel than of the Peruvian bark. But has any vegetable so completely prevented the recurrence of the paroxysms of intermittents as the last mentioned one? In the mineral kingdom, indeed, we have discovered an inestimable substitute for the bark: I mean Arsenic. This, particularly I think, when it is given in substance†, will more certainly cure the intermittent, than any vegetable yet known, the Peruvian bark excepted. But I am inclined to think, that relapses are more common after the employment of arsenic than after that of the bark. BESIDES, ARSENIC CANNOT ALWAYS BE USED WITH ENTIRE SAFETY. In illustration of this position, I may here observe, that I myself have seen three cases of very general oedema of the face and limbs (especially the former) evidently induced by arsenic. Two of the subjects were children,

* From the information of my learned friend, the Reverend Dr. Nicholas Collin, of Philadelphia.

† I have, for several years, employed the oxyd of arsenic in substance, in preference to Dr. Fowler's solution. I think it a much more certain medicine than the solution. I commonly give it in combination with opium. One grain of the arsenic is united to four or eight grains of opium, and made into a mass with conserve of roses, or honey, or soap. This is divided into sixteen pills, of which I direct the patient (an adult) to take two or three, at different periods, in the course of the day and night, *especially during the apyrexia*: Such are the powers of this medicine, that two grains of it are often sufficient to cure an intermittent, that has continued for weeks! Sometimes, I use larger doses: but in a majority of the cases that have come under my notice, I have found three sixteenths of a grain of arsenic sufficient for the period of twenty-four hours. As children are, with difficulty, prevailed upon to take the medicine in the shape of a pill, I rub down the arsenic with honey or molasses and water, and sometimes with a portion of gum-arabic. In this form, it is very conveniently given to children, by drops; and the quantity of the mineral, in each dose, may be estimated with considerable accuracy.—In the cure of intermittents, does arsenic operate by virtue of its tonic power?—The Peruvian bark sometimes cures intermittents that have resisted the powers of arsenic

and the third an adult. They all recovered, without experiencing any other inconvenience from the medicine. I have also seen a case of *temporary* paralysis (or perhaps rather extreme debility) of the limbs induced by the medicine, in a patient labouring under an obstinate intermittent. These notices may, possibly, be of some use to the very young and inexperienced practitioner, for whom principally they are thus candidly mentioned.

THE spirituous tincture of the bark of the *Cornus sericea*, already mentioned, has been advantageously used in the latter stage of diarrhoea, unaccompanied with fever*.

I HAVE already made mention of the *Magnolia glauca*†. The bark of this tree is celebrated among the Western Indians, as a remedy in rheumatism, and in fevers. The tree grows, in great profusion, upon the river Kan-haway, whither the Indians resort for the purpose of procuring the bark, which they carry off, in great abundance. Employed in the shape of a decoction, it “proves gently cathartic and ultimately sudorific.” A cold infusion and a tincture of the bark are much used in intermittents. “In one case of inflammatory rheumatism” it seemed to produce considerable effect and relief, as “a sudorific, after blood-letting had been premised.” It is known by the names of Elk-Bark and Indian Bark‡. From the former name, I presume the bark is eaten by the American Elk, or *Cervus Wapiti*. We know it is eaten by the Beaver: hence one of the English names of this tree, viz. Beaver-tree.

* From the information of Dr. Amos Gregg, jun.

† See Part First, pages 13, 14.

‡ From the information of my friend, Charles Everett, M. D. of Milton, Albemarle-County, Virginia.

FOR further information concerning the medical and other properties of this vegetable, I refer the reader to Dr. Thomas D. Price's *Inaugural Dissertation on the Magnolia Glauca, or Common White Laurel-tree**.

THE bark of the *Prunus Virginiana* (*Cerasus Virginiana* of Michaux), which I have mentioned in the First Part of these *Collections*†, is considerably bitter and astringent. These qualities are accompanied with some aromatic warmth. It has been justly observed, that "there is a great similarity between the flavour of this bark, and the skin inclosing the kernels of peach stones‡." This bark also possesses an evident narcotic quality, to which it is highly probable, that some of the useful qualities of the medicine, in certain cases, must be ascribed. It is manifestly stimulant. The bark of the root seems to be more powerful than that of the trunk.

MY own experience with this vegetable has been inconsiderable. The experience and observations of others, however, lead me to believe, that it is a medicine well worthy of the notice of physicians. In some parts of the United-States, the bark has been much employed in intermittents, in which it is said to have been found as efficacious as the Peruvian bark. This I am not willing to believe. But as it is a durable tonic, there is little reason to doubt, independently on actual observations, that it is deserving of attention in this common disease,

THE bark has also been found useful in certain cases of dyspepsia, in consumption of the lungs, and in lum-

* Philadelphia: 1802.

† See pages 11 and 35.

‡ Dr. Morris.

bar abscess, attended with hectic fever, and colliquative sweats. Of its use in this latter case, we have an instance in the *Medical Repository**. The patient made use of a decoction of the bark. It would be easy to mention many other diseases in which this medicine has been advantageously employed.

I HAVE already observed†, that the leaves of this tree are poisonous to certain animals. Dr. Morris has shown, that the distilled water of the leaves is a powerful poison to different species of animals, such as kittens, pigeons, &c. About a tea-spoonful of the water killed a "pigeon fully fledged," in thirty-two minutes. This gentleman was obliged to make his experiments upon the young and imperfectly-expanded leaves of the tree. The adult leaves are doubtless more powerful. Experiments would seem to show, that the deleterious principle of the leaves is of a very volatile nature‡.

UNDER this head of tonics, I may, with some propriety, take notice of the *Eupatorium perfoliatum*. I am sensible, however, that this vegetable might be more advantageously treated of under several different heads, such as those of Emetics, Sudorifics, &c., than under one individual head. But as a tonic quality is, unquestionably, attached to this plant, and as I am not, in these *Collections*, particularly studious of method, I shall bring together all I have to offer concerning the *Eupatorium*, under one point of view. Of this very common plant in almost every part of the United States, I have made

* Vol v. No. 111.

† Part First, page 11.

‡ See an Inaugural Dissertation on the *Prunus Virginiana*, &c. &c. By Charles Morris, of Virginia. Philadelphia: 1802.

mention in the First Part of these *Collections**. It is the *Eupatorium connatum* of Michaux. Besides the provincial or common English names which have already been mentioned, it is known by the following appellations: viz. Thorough-stem, Cross-wort, Bone-set, and Indian-Sage. The first of these names has been imposed upon it from the peculiar structure of the leaves, which are opposite, and appear as though the stem was thrust through them. It has received the name of Cross-wort, by which it is known in many parts of Virginia, from the position of the leaves, each pair of which (in general) take their origin from opposite sides of the stem, so that they cross each other nearly at right angles. I am more at a loss to refer the word Bone-set to its real origin: but I presume the plant received this name, from the great relief which, on many occasions, it has been known to afford to persons labouring under violent remitting and other fevers, in which the bones are greatly pained. The resemblance of the leaves of this plant to those of the Common Sage (*Salvia officinalis*) was, long ago, remarked by the botanists†. Hence the name Indian-Sage, by which this *Eupatorium* is known in some parts of Pennsylvania. We have seen, that it is one of the remedies of the Indians‡.

I HAVE already hinted at the obvious properties of the *Eupatorium*, and have observed, that it has been used in intermittents, and other fevers§. I am now to remark, in consequence of subsequent inquiries, that the plant

* See pages 28, 55.

† Particularly by Plukenet, who thus defines the plant: “ *Eupatorium Virginianum, Salvia foliis longissimis acuminatis, perfoliatum.* Alm. Bot. 140. t. 86. f. 6.

‡ Part First, p. 28, 55.

§ Part First, p. 28, 55.

has been exhibited, with uncommon advantage, in these affections. In simple intermittents, admitting of distinct intermissions, a decoction of the whole plant, or the leaves in powder, have, on many occasions, proved effectual in preventing the recurrence of paroxysms. I now speak of the medicine, as exhibited during the time of intermission. But the vegetable, especially in the form of a decoction, has often been given during the time of the hot stage, and I am in possession of a large portion of testimony in favour of its efficacy when thus employed. Not only in intermittents, but likewise in remittents, and in the malignant yellow-fever, as it has prevailed in Philadelphia, &c., has our plant been used, with much advantage. When exhibited in the form of a *warm* decoction, it has seemed to prove peculiarly beneficial, especially by exciting a copious perspiration. The effect of the medicine, in inducing this evacuation, constitutes one of its most valuable properties, and has procured to it an appellation (that of the “vegetable antimony”) to which, I believe, it is as well entitled as many other vegetables, which might be mentioned. But I greatly doubt if the sudorific effect of this plant, when unassisted by heat, can be compared to that of the *Polygala Senega*, and several other American plants. It often proves emetic: but this operation, which on many occasions, is not the least useful of its properties, may be prevented by a proper attention to the medicine. In some parts of the United-States, it is exhibited in intermittents, chiefly with a view to its emetic effect.

THE *Eupatorium* has been used in other cases. It is said to have been found very useful in a peculiar and distressing affection of the herpetic kind, which was formerly very common in Virginia, and there known by the name of the “James-river Ringworm;” because it

was especially prevalent among the inhabitants residing upon the upper streams of James-River. This disease was particularly disposed to affect young men. It attacked the thighs, the scrotum, and especially the parts immediately adjacent to the anus. It extended its ravages into the rectum, and perhaps much further. It was, at all times, a disgusting and troublesome disease, though it rarely proved mortal.

MR. JEFFERSON* informed me, in 1802, that within the period of his remembrance, this herpes was extremely common in Virginia, and that it had gradually disappeared, or become less common, from about the time† that the Warm and Hot Springs, in the county of Bath, in Virginia, had been better known, and more frequented. He ascribed the disappearance of the affection to the use of these waters; the temperature of the former of which is about 98°: that of the latter 106°, of Fahrenheit's thermometer.

IN this affection, the *Eupatorium perfoliatum* has often been found very beneficial, as I have been informed by a respectable physician‡ in Virginia. The patient drank a decoction of the plant, and continued the use of it for a considerable time. It sometimes puked: it, no doubt, purged; and, in all probability, it operated as a sudorific. But by what quality it more especially operated, in curing the disease, I am unable to say. The fact may, I believe, be depended upon.

* The President of the United-States.

† These waters were certainly known at least as early as 1759 or 1760. But I believe they did not begin to be frequented, by any considerable number of persons, until some years after. The James-river Ringworm was very prevalent about the year 1766.

‡ Dr. Thomas Knox, of Culpeper.

It may, perhaps, serve to increase our confidence in the powers ascribed to the *Eupatorium perfoliatum* as a remedy for herpes, to observe, that the *Aya-Pana*, which of late has excited so much attention, is a species of this vast family of plants, and that it also has been celebrated as a remedy in certain affections, somewhat allied to herpes*.

I CLOSE this article by observing, that every part of the *Eupatorium perfoliatum* may be advantageously employed in practice. I believe, from my own observations, that the flowers possess the greatest portion of the activity of the plant; and they ought to be kept in the shops. As a tonic bitter, I deem them superior to the flowers of Camomile, (*Anthemis nobilis*), for which they might be substituted, on many occasions.

SECTION III. STIMULANTS, OR INCITANTS.

§ I. GENERAL STIMULANTS.

KALMIA latifolia†. The powdered leaves of this vegetable have been used, with much success, in some cases of intermittents‡. A saturated tincture, prepared from the leaves with a proof spirit, is an active medicine, and perhaps worthy of a place in the shops§. For some

* See Mr. Tilloch's valuable Philosophical Magazine, &c. vol. xiii. p. 376, &c. &c.

† See Part First, p. 18, 50.

‡ Dr. Amos Gregg, jun.

§ A few drops of this tincture, poured upon the body of a large and vigor-

interesting information concerning the powers of this species of *Kalmia*, and also those of *Kalmia angustifolia*, or Narrow-leaved *Kalmia*, commonly called Lamb-kill, &c., I beg leave to refer the reader to Dr. George G. Thomas's *Inaugural Dissertation* concerning these plants, published at Philadelphia, in 1802.

LAURUS Sassafra. In the First Part of this work, I have made mention of the oil of this vegetable, and have hinted at its affinity to camphor*. The resemblance between the two articles is further evinced by this circumstance, that the oil of *Sassafra*, when externally applied to the body in rheumatic and gouty affections, is remarkable for its power of shifting the pain from its original seat; *but not always to the advantage of the patient*. Like camphor, therefore, it ought ever to be used, in such affections, with great caution. I believe, however, that it is a medicine well adapted to many cases of rheumatism, in its chronic stage; though even here it may prove injurious.

THE *Phytolacca decandra*, well known by the names of Poke, Garget, American Nightshade, &c., is one of the most common North-American plants. It is, certainly, a plant of great activity, though the young shoots, when boiled, may be eaten with impunity, and are justly deemed a great delicacy. By many, they are preferred to the finest asparagus.

SOME of the medicinal powers of this plant have long been known†. The ripe berries, infused in brandy,

ous rattle-snake, in my possession, killed the reptile in a very short time. It violently affected the animal, *almost instantaneously*.

* Pages 19, 20.

† See the writings of Kalm, Vogel, Haller, Allioni, Schoepf, and others.

or wine, especially the former, are a popular remedy for rheumatism, in many parts of the United-States. This tincture of Poke (*Tinctura Phytolacæ*) is certainly a valuable medicine in cases of chronic rheumatism, and other similar affections. Like the volatile tincture of gum Guaiacum, it has sometimes done injury; as might indeed be expected from an active medicine, in the hands of the injudicious or ignorant. It may, I believe, be safely exhibited in most of the cases of rheumatism, in which the Guaiacum has been used with safety and advantage. In the rheumatic affections, which frequently succeed to the venereal disease, it seems to be a more valuable medicine than the Guaiacum, and may be advantageously employed, especially along with calomel, or other preparations of mercury. I have employed the ripe juice of the berries, inspissated to the state of an extract, in some cases of scrophula. The juice, in the same state, has, I am informed, been advantageously employed in cases of cancerous ulcers. These ulcers were dressed with the extract, spread upon linen, or upon the leaf of the plant. But the juice of the leaves, applied in the same manner, is said to have been found more efficacious. I am inclined to repose some credit in the testimonies which I have collected concerning the utility of the extract of Poke, in the cases just mentioned.

THE reader may consult, with advantage, *An Inaugural Botanico-Medical Dissertation on the Phytolacca Decandra of Linnæus*. By Benjamin Shultz*. As a repository of facts concerning the Phytolacca, this dissertation is valuable, and worthy of attention. But the subject is still, in a great measure, a new one.

* Philadelphia: 1795.

ARUM triphyllum*. The recent root of this plant boiled in milk, so as to communicate to the milk a strong impregnation of the peculiar acrimony of the plant, has been advantageously employed in cases of consumption of the lungs. I have heard of one case (that of a negro man in Virginia) who was completely cured of a pulmonary consumption by continuing to take, for a considerable time, milk in which the root of the Arum had been boiled. It would certainly be worth trying this simple prescription in some cases of a disease which so generally baffles the powers of all our medicines, and the skill of the best physicians. I am not ignorant, that within the period of a very few years, the disease of consumption has been supposed to be deprived of some of its terrors: but I must add, with real regret, that notwithstanding the high encomiums which have been bestowed upon the Digitalis as a remedy for this disease, by some distinguished medical philosophers, and practitioners†, I have employed this vegetable in a considerable number of cases of consumption, and, upon the whole, with very inconsiderable *permanent* advantage. In one case, indeed, it *seemed* to perform a cure of what I deemed genuine phthisis: in several other cases, it evidently and remarkably affected the pulse, and moderated the urgency of the symptoms; but the patients ultimately fell victims to the disease. Some of the patients to whom I exhibited the Digitalis were so far advanced in the disease, that little benefit could have been expected from medicine of any kind: but others of them again were in the earlier stages of the disease, and consequently in a situation that seemed to admit of permanent relief, from this or from other medicines. Yet, with the exception of

* Part First, p. 21, 52.

† Mr. Saunders, Dr. Thomas Beddoes, Dr. N. Drake, &c. &c

the case already hinted at, I have not been able to effect a single cure by means of *Digitalis*. I am even inclined to think, that I have, in several instances*, more considerably arrested the progress of phthisis pulmonalis by means of emetics (particularly the sulphat of zinc, exhibited in the manner recommended by Dr. Moseley†) than by *Digitalis*. Candour compels me to add, that my own experience with the *Digitalis* in consumption has been less than that of several other practitioners in Philadelphia, some of whom entertain a more favourable opinion of the medicine, as a remedy for consumption, than I do.

DR. STORCK, of Vienna, has called the attention of physicians to a species of *Clematis*, or Virgin's-Bower, the *Clematis recta*‡. This is a very acrid and active plant, which Storck recommended in cancerous, venereal and other malignant ulcers, and also in obstinate pains of the head, and bones, and in other diseases. An infusion of the flowers or leaves, and an extract of the plant were used internally. The powder was sprinkled upon the ulcers, where it was found to act as an excellent escharotic and detergent.

I DO not know that the *Clematis recta* is a native of any part of America. I have been led to mention the plant in this place, because the United-States afford us some species of the same genus, which, from a few experiments that I have made with them, promise to be useful in medicine. The species which I have more particularly attended to, are *Clematis crispa*, and *Clematis*

* Especially in the Pennsylvania Hospital, in the summer of 1803.

† A Treatise upon Tropical Diseases, &c. &c. p. 541, &c. London: 1792.

‡ Upright Virgin's-Bower. Storck calls the plant *Flammula Jovis*. It is a native of Austria, Hungary, Switzerland, and France.

Viorna. The leaves of these species are extremely acrid, and may be found useful in chronic rheumatism, palsy, old ulcers; and, in fine, in all the diseases in which Storck found the *Clematis recta* useful*. As they are very active plants, it is necessary to use them in small doses. I have received some obscure information concerning the employment of one of the species (I think *C. crispa*), in Virginia, as a remedy in some particular affections.

DR. SCHOEPP has made no mention of these plants, but has proposed the employment of *Clematis Virginiana*, as a substitute for *Clematis recta*†. The *C. Virginiana* is a much more feeble plant than either of the three other species which have been mentioned.

§ II. TOPICAL STIMULANTS.

THE *Pyrola umbellata*, already mentioned, may be noticed under this head. The bruised leaves of this plant, when externally applied, sometimes induce redness, vesication and desquamation of the skin. But this is by no means a constant operation of the vegetable; and, therefore, it does not seem particularly worthy of our attention, in this point of view.

RHUS radicans‡. The following observations, relative to the deleterious property of this common plant,

* See Elements of Botany, &c. Part Third. p. 70.

† Materia Medica Americana, &c. Præfatio. p. xiii.

‡ See Part First, p. 23, 52, 53, 54

will not, I hope, be unacceptable to those who are interested in a knowledge of its natural history. The person who is the subject of the observations, has, for many years, been severely affected by the plant; and although many other persons are similarly affected, it is not often, I believe, that the progress of the poison is marked with minute attention in those who are injured by it.

ON the eighth day of July, 1795, I applied two or three drops of the milky juice whilst it issued from the common foot-stalk of the leaves of the *Rhus radicans*, to the wristband of my shirt. These leaves, immediately before, had been torn from the stalk of the plant, by a friend of mine*. My object, in applying the juice, was to determine, in what length of time it would assume the black hue. In a few minutes, I found that the linen was stained black, and in a short time after this, I observed that the juice had penetrated through the wristband, and that it had communicated a dark brown or blackish colour to that portion of the epidermis which was immediately under it. The day was unusually warm, and I went into the water to bathe. In the evening, I felt a considerable itching of my wrist, and the following morning observed, that there were upon it a number of extremely minute vesicles, which contained a fluid more or less limpid, or transparent. The itching increased hourly: the wrist and the middle of the fore-arm began to swell, and the vesicles extended themselves rapidly, chiefly upwards, towards the elbow, and partly downwards, along the lower part of the wrist, and upon the fingers.

* I was not myself within the sphere of the action of the plant, which I was careful to avoid, well knowing, from long experience, its injurious effects upon me.

MEANWHILE, vesicles accompanied with, and preceded by, itching more or less troublesome, made their appearance, upon various other parts of the body. The face was universally sprinkled with them. But these were extremely small, the fluid which they contained, was always very limpid, and without any application, except that of cold water every morning, they entirely disappeared in two or three days.

ABOUT the seventh or eighth day, the itching, the inflammation, and the spread of the vesicles appeared to be nearly at their height. At this period, and for some days afterwards, the greater part of the fore-arm, and about one third of the arm were swelled to nearly twice the natural thickness; the itching was intolerable, and the vesicles, in general, were no longer filled with a limpid fluid, but contained a thick matter, or pus, very similar to that of small-pox, and strongly adhering to the linen.

ON the ninth day, I perceived a swelling in the axillary gland of the right arm, which was that to which the lacteous juice was applied, and which was chiefly affected. The swelling rapidly increased, until it became of the size of a hen's egg, and on the second day from its appearance, it had almost entirely evanished.

FROM the period that the swelling was at its height, to its entire disappearance, the itching was almost universal, and much more insupportable than it was before. I attributed this itching to the influence of the poison, which, I suppose, was conveyed into the system, from the time that the axillary gland began to swell and inflame. Nevertheless, I could not discover that there was

in consequence of this supposed absorption of the poison, any increase of the number of vesicles upon the surface of the body.

IN fifteen days from the time that the poison was first applied to my arm, all the disagreeable symptoms had ceased; the vesicles had almost entirely disappeared; a desquamation of the affected parts had taken place, and a new epidermis had been formed.

FROM the foregoing statement, it must appear evident, that to some constitutions the milk-like juice of the *Rhus radicans* is capable of producing very disagreeable effects. It must not, however, be imagined, that these effects are equally disagreeable to all constitutions; and it is certain that there are *many* persons who are not at all affected by this plant.

IT has been asserted, that persons of the most irritable habits of body are the most liable to be affected by the *Rhus radicans*, and by some other species of the same genus. I do not intend to oppose myself as an exception to this position; but from a recollection of the constitutions of several persons to whom this poison has been applied, I have very little hesitation in asserting, that the susceptibility of receiving its influence is by no means proportional to the degree of irritability, whether muscular or mental, of the habit. It may, I believe, be asserted with much more truth, that the susceptibility of receiving the influence of the poison of the *Rhus radicans* is somewhat proportional to the delicacy and thinness of the epidermis and skin. Hence, no doubt, it is that females are more liable to be poisoned by this plant than males; that the face is seldom so much affected by it as the arms, the genitals, and most other parts of the

body that are protected from the constant influence of the air; and that young persons are more frequently poisoned than those who have arrived at the age of manhood, or who have passed to the term of older age.

I HAVE said, that there are many persons who are not, in the least, affected by the poison of the *Rhus radicans*, externally applied. This is an undoubted fact. Some of these persons after expressing the juice of the plant, will rub it upon their arms, and other parts of their bodies, without experiencing the smallest injurious effect. I am acquainted with two gentlemen, who find no ill effects from chewing, for a considerable time, the recent leaves of this plant. It deserves to be mentioned, that one of the gentlemen, I allude to, is liable to be considerably injured by the effluvia of the *Rhus radicans*, when applied to the external surface of his body.

It may not be improper to observe, in this place, that several other native plants besides the species of *Rhus*, and the *Pyrola umbellata*, induce, in certain persons, a vesicular state of the skin. The flowers of the *Kalmia latifolia*, or Broad-leaved Laurel, have been known to do this in some persons. I knew an elderly lady who was affected, in the same way, by the *Nerium Oleander*, or Common-Oleander, or Rosebay. But this last is not an American vegetable.

A DECOCTION of the bark of the *Rhus radicans* has been used, with seeming advantage, in some cases of consumption of the lungs, in different parts of Pennsylvania. A gentleman of my acquaintance (who has since fallen a victim to the disease) informed me, that he had certainly found much benefit from this decoction in a pulmonary affection, complicated with *fistula in ano*.

A decoction of the root of the plant is said to have been advantageously employed in cases of asthma.

A LATE writer, M. du Fresnoi, strongly recommends the *Rhus radicans*, in the treatment of herpetic affections, and in paralysis. In the first of these cases, he employed the infusion and the distilled water of the leaves of the plant. He relates seven cases, which seem to establish, unequivocally, the efficacy of these preparations in the affections which I have mentioned. He says he cured five cases of paralysis by the use of the plant*. Dr. Alderson informs us, that he has used the *Rhus Toxicodendron*, with much benefit, in the same disease†.

THE bark of the *Rhus glabrum*, or Smooth Pennsylvania Sumach‡, boiled in milk, has been recommended as a remedy for chronic ulcers; and, I am informed, has been found very useful. The ulcers are often washed with the decoction.

SECTION IV. SIALAGOGA.

I HAVE nothing additional to say under the head of particular ERRHINES, and therefore proceed to the section of SIALAGOGA, or SALIVATING medicines. Between these and the Errhines, there is a very great affin-

* Des propriétés de la plante, appelée, *Rhus radicans*; de son utilité, &c. &c. A Leipsic: 1788. I have not seen the original work.

† An Essay on the *Rhus Toxicodendron*, or Pubescent Poison-Oak, or Sumach, &c. By John Alderson, M. D. Hull: 1796.

‡ Part First, p. 53.

ity; as is evinced by this circumstance, that several articles of the materia medica, both minerals and vegetables, very frequently act by increasing the secretion by the nose, and also that by the salivary glands. This is remarkably the case with respect to the sulphat of mercury, or turpith-mineral; and, in one instance, I think I have seen a salivation decidedly induced by the use of the turpith-mineral, in combination with tobacco, that had been used, for some weeks, as an errhine. This will the more readily be admitted as a fact, when we read, that a very extensive salivation of long continuance, has been apparently induced by an irritation applied to the parotid gland, through the medium of the *meatus auditorius*. The irritating substance was a portion of fetid wool*. It would be an easy task to cumulate facts to prove, that “the number of salivating medicines is much greater than has been commonly imagined†.”

POLYGALA Senega, or Seneca Snake-root‡. My ingenious pupil, Dr. Thomas Walmsley has lately communicated to me an additional instance of the salivating power of this active vegetable. The patient (a lady aged about years) had taken, for some time, a decoction of the Seneca, and was thrown into a profuse ptyalism, which continued for a considerable time.

It is a well-ascertained fact, that the disease of tetanus has often been induced by different poisonous vegetables: by Datura Stramonium, Hyoscyamus albus, or White-Henbane, not to mention several others. The

* See Medical Transactions, published by the College of physicians in London, vol. II. p. 34, &c.

† See Part First, p. 25

‡ See Part First, p. 26

same disease is likewise sometimes induced by the *healthy* or natural poisons of certain animals. I have collected two well-authenticated instances of the production of this disease, by the bites of venomous serpents, in the United-States. One of the patients died. The tetanus did not come on until six or seven days after she was bitten. The other recovered from the disease, by the use of large doses of the Seneca, boiled in milk*. I know not whether this instance of success should encourage us to hope, that the Seneca might be given, with advantage, in those cases of tetanus which are the consequence of wounds, in different parts of the body. I fear that our vegetable, though by no means a feeble one, will be found unequal to the cure of this terrible disease.

THE *Zanthoxylum Clava Herculis* and *Zanthoxylum fraxinifolium* are both mentioned in the First Part of these *Collections*†. They are both vegetables endued with very active powers. The bark promises to be a very useful medicine in cases of paralytic affections of the tongue, or of the muscles concerned in deglutition: and in such cases, when held in the mouth, they have been employed with advantage‡. They are more active than *Mezereon* (*Daphne Mezereum*), which both Dr. Withering§ and myself have employed, with a good effect, in the same cases. It might, perhaps, be worth trying the *Zanthoxyla*, as masticatories, in some cases of stammering.

IN some parts of Virginia, the berries of *Zanthoxylum fraxinifolium* are much esteemed as a remedy in

* See Elements of Botany, &c. Part Third, p. 105.

† See p. 26, 54.

‡ By Dr. Tucker Harris, of Charleston, South-Carolina.

§ A Systematic Arrangement, &c. vol. II. p. 370.

violent cholicky affections. A spirituous infusion of the berries is employed. They are known by the name of "Suter's-berries."

For some interesting notices concerning the use of the bark of *Zanthoxylum Clava Herculis*, in rheumatic affections, in ulcers, &c. &c. &c., I refer the reader to different communications, in the *Memoirs of the Medical Society of London**, and other periodical publications.

SECTION V. EMETICS.

SPIRÆA trifoliata†. This is sometimes very injudiciously employed by the country-people, insomuch that they are obliged to apply for medical aid to remove the debility induced by the large doses of the root which they employ. "It is said, that there grows in the state of Kentucky, another species, which is still more valuable, as an emetic, than the *S. trifoliata*‡."

THE emetic power of the *Sanguinaria Canadensis*, of which I have taken notice in the former part of this work§, has been fully established by the experiments of Dr. Downey, in his ingenious essay upon this plant. The "most prominent effect" of the medicine is to induce vomiting, even when it is exhibited in moderate doses. "When taken in the dose of fifteen or twenty grains," it exerts powerful emetic qualities. "But in consequence of the irritation, which is produced in

* Vol. V.

† Part First, p. 27.

‡ Elements of Botany, &c. Part III. p. 89

§ Page 28.

“ the fauces, it is probable, that in the form of a powder, it will never come into general use. This inconvenience may, however, be obviated, by giving it in form of a decoction or extract.” When managed with care, it is deemed “ but little inferior to the ipecacuanha, either in the certainty or speediness of its operation*. The powder of the root may be given as an emetic for an adult, in the dose of fifteen or twenty grains, made into pills, otherwise a considerable irritation will be produced in the fauces in taking it†.”

HITHERTO, the Sanguinaria has been but little employed by the regular practitioners. It promises, however, to be an useful medicine, particularly on the foundation of its emetic and expectorant effects, in cases of cynanche maligna, or ulcerous sore-throat, in cynanche trachealis, or hives, and other similar affections. Its properties seem to be considerably allied to those of the Seneca Snake-root, which has been so beneficially employed in the same cases‡. I have received an account of its having been employed, in the shape of a decoction, with very evident good effect, in the case of that particular form of cynanche trachealis, which Dr. Darwin has named *Peripneumonia trachealis*§. The medicine proved emetic, and the patient recovered.

* An Investigation of the properties of the Sanguinaria Canadensis, or Puccoon. By William Downey, of Maryland. Philadelphia: 1803.

† An Investigation, &c. pages 23, 25.

‡ See Part First, p. 34, 56, 57.

§ Zoonomia, or the Laws of Organic Life. Vol. I. The disease of hives appears under several different shapes, in all of which the trachea seems to be essentially affected. In the course of my practice, I have met with some cases, which answer precisely to Darwin's description, and for which I think the term peripneumonia trachealis is a very appropriate one. If I do not mistake, this form of the disease, in general, more readily admits of early and complete relief than any of the other shapes in which it appears.

I HAVE already observed, that the seeds of the *Sanguinaria* “ appear to possess nearly the same quality as “ the seeds of *Datura Stramonium**.” That is, they induce fever, delirium, dilatation of the pupil of the eye, &c. Dr. Downey concludes, from a few experiments, which he made with the “ unripe seeds,” that they possess a very considerable influence over the pulse, and “ a stupifying or narcotic quality†.” A deleterious property evidently resides in the leaves of the plant‡, as well as in the seeds.

SECTION VI. CATHARTICS.

UNDER this head, in the former part of the work§, I have mentioned the *Asclepias decumbens*, commonly called *Pleurisy-root*, *Flux-root*, &c. The root of this plant does, unquestionably, possess a purgative quality. But this does not seem to be the most valuable part of its properties. It is said to possess a remarkable power of affecting the skin, inducing general and plentiful perspiration, without greatly increasing the heat of the body. Accordingly, I find it is much employed by the practitioners of medicine, in some parts of the United-States, particularly, I believe, in Virginia, as a remedy in certain forms of fever, in pleurisy, and other affections. The root is used both in powder and in decoction. Sometimes, it is used in combination with antimonials.

* Part First, p. 28.

† An Investigation, &c. p. 24.

‡ Ibid. p. 24.

§ Page 29. See, also, page 55.
Part II.

THE decoction often induces perspiration, when other medicines have failed to produce this effect. A physician*, who has been much in the habit of employing this Asclepias, informs me, that ‘ in the low states of typhus fever, he has more frequently observed a perspiration to succeed to the use of the Asclepias than to any of the sudorifics that are generally used.’

ABOUT thirty years ago, this vegetable was strongly recommended, as a specific for Pleurisy, by a Mr. Thomson Mason, of Virginia. After the use of an antimonial emetic, and the loss of some blood, he gives his patients “ as much of the Pleurisy-root, pounded very fine, and then searched through a fine search, as will lie upon a tolerable broad caseknife, in a cup of warm water, and repeats the dose every two hours, until the patient is perfectly recovered, which happens frequently after three days, and never fails freeing him from pain after six.” Mr. Thomson assures us, that by these simple means, he “ has cured hundreds, and never failed in a single instance.”

It does not appear, that Mr. Thomson was a regular physician; but I have been led to mention his practice the more particularly, because his publication seems to have first called the attention of the public to the virtues of the Pleurisy-root, and I know that some very respectable physicians, in Virginia†, have reposed not a little confidence in the powers which our author has ascribed

* Dr. Charles Everett. Letter to me, dated Milton, October 23d, 1803.

† Among others, my friend, the late Dr. James Greenway, of Dinwiddie-county, in Virginia. From this gentleman, I received a copy of Thomson’s paper, which I think first made its appearance in an Almanac, in 1773

to the medicine, as a remedy in the cases in which he employed it.

FROM Mr. Thomson's publication, it also appears, that the Pleurisy-root may be given in pretty large doses, perhaps about half a dram, several times in the course of the day. Indeed, I find that the Virginia physicians are not very nice in the doses of this medicine, when they prescribe it.

IT seems that Mr. Thomson entirely confined himself to the use of the *Asclepias decumbens*, or the species with beautiful orange-coloured blossoms. He observes, however, that there are two other species of the Pleurisy-root, which are known by the name of "Butterfly-weed." It is probable, therefore, that these two kinds (one of which I take for *Asclepias Syriaca*, well known by the names of Wild-Cotton, and Cotton-plant) have sometimes been used for the *Asclepias decumbens*; and it is not unlikely, that a common assemblage of properties belongs to a number of the species of this fine family of plants. *Asclepias Vincetoxicum*, which is a native of Europe, has been recommended by some writers on the *Materia Medica*, as a remedy for dysentery, and other diseases.

I HAVE already mentioned* the extract of the *Juglans cinerea*†, or Butternut-Walnut. This appears to me to be one of our most valuable native cathartics. It is well adapted to the treatment of dysentery, in which, however, it seems to operate merely as a laxative. A decoction of the inner bark (*liber*) of the tree has been

* See Part First, p. 31.

† *Juglans oblonga alba* of Marshall.

very advantageously used as a cathartic, in that malignant fever of our horses, called the yellow-water, which I formerly noticed*.

THE green or unripe fruit of this vegetable is considerably acrid, and when applied externally to the skin, induces some irritation there. Advantage has been taken of this property by the country-people in some parts of the United-States. They apply the cut end of the fruit to those milk-white spots which often appear upon different parts of the body, and seem to arise from a removal of the *rete mucosum*, or perhaps rather its colouring matter, from the skin. A surgeon, whom I met with in the remote parts of the state of New-York, in the year 1797, informed me, that he had known the Butternut employed with the effect of entirely removing the white *maculae*, or spots in some persons. I should have confidently ascribed the removal of these spots to the stimulant operation of the juice of the nut, if I had not been assured, that similar affections are sometimes removed by the simple application of cream and other articles, which can hardly be supposed to operate by virtue of a stimulant power. I am, however, the more inclined to ascribe the removal of the spots to the stimulant action of the nut, because in a case of this kind, that came under my own notice, I found much advantage from the application of a blister of cantharides to the affected parts. The spots were not only prevented from increasing, but were very sensibly diminished in size, by the action of the cantharides. I have the satisfaction to believe, that by this simple treatment, I prevented the colouring matter of the mucous membrane from being entirely removed from one side, at least, of the face.

* See Part First, p. 12.

I SHALL close this article by observing, that the spots of which I have been speaking, are mentioned by different writers, but by none, I believe, more particularly or correctly, than by my learned friend Professor Blumenbach, of Gottingen. After speaking of the white spots which often make their appearance upon the bodies of negroes, and other dark-coloured people (see his section *cutis fusca maculis candidis variegata*), he has the following words; “ Niveae vero istae et aequabiles mollesque
 “ maculae quae non nisi actionem alienatam vasculorum
 “ minimorum corii sequuntur, neutiquam inter Aethi-
 “ opes tantum verum etiam passim inter nostrates occur-
 “ runt; mihiq[ue] ipsi bina istiusmodi exempla in Ger-
 “ manicis hominibus observandi occasio fuit, alterum
 “ viri juvenis, alterum senis sexaginta et quod excurrit
 “ annorum. Utrique cutis subfusca hinc illinc maculis
 “ diversae magnitudinis candidissimis distincta: quae
 “ vero neutri connatae, sed isti infantili aetate, huic con-
 “ tra virili sensim et sua sponte subortae fuerant*.”



SECTION VII. DIURETICS.

I HAVE little to say under this head. I believe, however, that it is a fact, that several of our indigenous vegetables, of which no notice has been taken in the preceding part of the *Collections*, are very powerful Diuretics: but my knowledge of these plants is, as yet, very imperfect.

* De Generis Humani varietate nativa, &c. p. 154, 155. Gottingae: 1795.

THE *Erigeron Philadelphicum*, or Philadelphia Flea-Bane, is one of the most common plants in many parts of the United-States. A decoction or infusion of the plant has been used in Philadelphia, by several persons, for gouty and gravelly complaints, and some of them have informed me, that they have been much benefited by the use of the plant*. It operates powerfully as a diuretic, and also as a sudorific. This *Erigeron* is known in Pennsylvania by the name of Skevish, which I suspect is a corruption of the word Scabious. But it must be confessed, that the genera *Scabiosa* (Scabious) and *Erigeron* are sufficiently remote from each other.

I HAVE never employed the *Erigeron Philadelphicum*, in practice: but I am led to believe, that there is *some* foundation for the assertions which I have noticed, because I find that the same plant is mentioned by Father Loureiro, as one of the remedies that are employed by the people of Cochinchina; and he speaks of it as an active emmenagogue†.

IN Virginia, there is a plant called "Piss-wort," which is deemed a very powerful diuretic. I am unacquainted with the plant, which, however, has been mentioned to me by a respectable physician, who informs me, that he once saw a strong decoction of it given to a horse, labouring under strangury, with the effect of suddenly exciting a very copious flow of urine. Perhaps, it will be found that this plant is a species of *Menispermum*, or Moon-seed, of which genus there are several species indigenous within the limits of the United-States.

* See Elements of Botany, &c. Part Third. p. 123.

† Flora Cochinchinensis, &c. Tom. II. p. 500. Ulyssiponæ: 1790.

SECTION VIII. ANTILITHICS.

By this term of ANTILITHICS, I mean those medicines which give relief in the disease of *lithiasis*, or calculus, and also in nephritis when this depends upon the same causes that induce calculus, such as a gouty diathesis, not to mention others. I prefer this term to the old one of LITHONTRIPTICS, which has so generally been employed to denote a set of medicines which produce the effects I have mentioned. Lithontriptics, in the rigid sense of this term, are, I think, unknown to us; though I do not deny, that the long-continued use of lime-water and other similar medicines, may on some occasions, have acted partially by dissolving, or otherwise altering, the surface of urinary and other calculi. Meanwhile, we are certain, that in many instances where Uva Ursi and other medicines have greatly relieved the distressing symptoms induced by a calculus, the latter has remained undissolved, and its form, perhaps, not in the least, altered.

THE real mode of operation of the Antilithics is unknown to us. It seems highly probable, however, that many of them produce their effects by virtue of an astringent quality. We, at least, find that not a few of the astringents, such as Uva Ursi*, some species of Geranium, &c., do give relief in many cases of nephritis and calculus†. Dr. Cullen imagines, that the astringents act, in this case, by absorbing an acid in the stomach‡. But this appears to be a frivolous theory, unsupported

* See page 3.

† J. H. Heucher.

‡ A Treatise of the Materia Medica. Vol. II. p. 13, &c.

by any respectable body of facts. The mode of operation of the astringents, is not completely understood; and in ascertaining the fact, that these medicines are antilithics, we have only advanced one step towards the discovery of truth. But whatever may be the precise manner of acting of the astringents in cases of nephritis and calculus, we are certain, that an antilithic property belongs to many articles which have little or no claim to the character of astringents. Such are some of the plants of the genus *Allium*, or Garlic, as the Leek (*Allium Porrum*), &c.: also, carbonic acid, and carbonate of soda, not to mention several others.

It is much to be regretted, that this most important subject should still be involved in so much uncertainty, notwithstanding the late laborious and ingenious inquiries of Fourcroy, Pearson, and other philosophers, who have favoured us with the results of their experiments, relative to the analysis of human and other calculi. But on this subject much remains to be done; and although it is not probable, that we shall soon, if ever, discover a *solvent* for calculi in the body, it is highly likely, that a more extensive and correct acquaintance with the intimate nature of these concretions, will, in time, conduct us to a knowledge of the means of *preventing* their formation.

I HAVE but little to say on the subject of particular Antilithics. Indeed, it must be confessed, that our catalogue of articles that are deserving of this title is very small.

Of the *Uva Ursi*, I have already taken some notice*. I have also observed, that the *Pyrola umbellata* has been

* See Part First, p. 9, 10. See also page 3, of the present part.

employed with advantage in nephritic affections*. The good effects of the kernels of *Corylus Americana* have been noticed†, as have those of the Philadelphia Fleabane, or *Erigeron Philadelphicum*‡. I have not however, employed any of these articles in the disease of nephritis, except the *Uva Ursi*, which is, unquestionably, a valuable antilithic. I have often prescribed this medicine, and have known it to be useful, even when it was ascertained that a calculus was present. It is certain that it does relieve the disagreeable symptoms which are the consequence of the irritation of a stone; and some facts which have come under my own observation, independently on those which I have met with in medical authors, have led me to believe, that the use of this astringent medicine facilitates the expulsion of calculous granules, through the urethra. In what manner this effect is accomplished, I am unable to say. I must add, however, that in *some* nephritic cases, *Uva Ursi* seems to increase the irritation which it so *generally* relieves.

I HAVE already observed, that the root of *Convolvulus panduratus* “has been much recommended in cases “of gravel§.” Since the publication of the former part of the *Collections*, I have received some additional and more certain information on this subject. In particular, I have learned, that an infusion or decoction of the root has been often used by a physician|| of New-Jersey, who has found the medicine very useful in his own case. He is persuaded, that it has enabled him to pass the calculous granules, with much facility.

* See p. 2, 3.

† See p. 3.

‡ See p. 46.

§ See Part First, p. 56

|| Dr. Harris.

SECTION IX. ANTHELMINTICS.

It has been asserted, that Worms, as constituting a disease, are more common in America than in Europe. I suspect that there is some foundation for this assertion, though I am sensible, that the assertion ought to be received with some hesitation. A larger body of facts should be collected, before the truth can be completely established.

I HAVE already observed, that the Indian children, in some parts of the United-States, are very “ subject to worms, and to the *larvæ* of insects, introduced into the system, along with their crude, and often unwholesome, aliment*.” It is, moreover, a fact, that great numbers of these children fall victims to the diseases induced by worms. This is acknowledged by many of the Indians with whom I have conversed. The Oneidas preserve a very curious tradition concerning one of these epidemic worm-fevers, and inform us, that in consequence of the destruction which it occasioned among their children, the nation relinquished a station which it had long occupied, on the margin of the Oneida-Lake, and took possession of another, at some distance from the Lake. It has, however, been asserted by some ingenious writers, that diseases from worms are unknown among the Indians†. My own observations and inqui-

* See Part First, p. 38, &c.

† Dr. Rush says, he “ cannot find any accounts of diseases from worms, among the Indians.” “ Nor does dentition (he observes) appear to be a disorder among the Indians. The facility with which the healthy children of healthy parents cut their teeth, among civilized nations, gives us reason to conclude, that the Indian children never suffer from this quarter.” See An Oration, &c., containing an Inquiry into the Natural History of Medicine among the Indians of North-America, &c. &c. p. 26. Philadelphia: 1774.

ries lead me to adopt a very opposite opinion. Indeed, the children of the Indians seem to suffer not much less from worms, and from dentition, than the children of the Europeo-Americans.

WHATEVER foundation there may be for the assertion, that worms are peculiarly common in North-America, it will not be denied, that the subject of Anthelmintic medicines is one well worthy of attention. On this account, I shall introduce into this place a few additional notices on the subject. I begin with those vegetables which are most obviously characterized by a tonic quality.

A STRONG decoction of the bark of the *Prunus Virginiana** has been employed, with a good effect in some cases of worms. Whether this bark operates by any other than by a tonic quality, I am unable to say. It will not be denied, that many of the bitter tonic medicines are, on many occasions, excellent anthelmintics. But I am very far from believing, with some ingenious writers†, that the tonic medicines are always the best anthelmintics. In the epidemic verminose fevers, which often prevail in the marshy tracts of country, and are evidently owing to the same causes that induce common intermittents and remittents, the Peruvian bark and other similar medicines may be used with peculiar advantage. Moreover, tonics are at all times properly exhibited, with a view to prevent worms from increasing in the system. But many articles that are not at all,

* See p. 21, 22.

† Mr. James Moore. "Bark (says this author) is perhaps the best of all "worm-powders." An Essay on the Materia Medica, &c. p. 148. London: 1792.

or at least very inconsiderably, tonic, are among the most valuable anthelmintics with which we are acquainted.

THE *Veratrum luteum**, commonly called Devil's bit, and Blazing Star, is entitled to notice. The root of this plant is a very pungent bitter, and is employed as a tonic, in some parts of the United-States. A spirituous infusion of the root is made use of. A tea, or watery infusion, of the root is often used, and is deemed an excellent anthelmintic. I presume, it does not operate merely by virtue of its bitter or tonic property. A narcotic quality seems to belong to this vegetable, and I am inclined to think, that its good effects, in cases of cholic, and perhaps, in cases of worms, are, in part at least, owing to this quality.

A WATERY infusion of the twigs and leaves of the *Laurus Benzoin*, formerly mentioned†, is often given to children, with a view to destroy and dislodge worms, and is deemed an efficacious medicine in this case.

THE root of the *Sanguinaria Canadensis*, exhibited with a view to its emetic effect, has, in some instances, dislodged worms from the stomach. Future experiments must determine, how far this active article is entitled to the character of an anthelmintic. Perhaps, *Ipecacuanha*, or any other emetic, would be found equally beneficial in similar cases.

IN the course of my journey through Virginia, in the year 1802, I was informed, that the *ripe* fruit of the

* I take this plant to be the *Melanthium dioicum* of Walter. See my Elements of Botany, &c. Part Third, p. 157, &c.

† See Part First, p. 20.

Persimmon (*Diospyros Virginiana**) has often been found very useful in the worm-cases of the negro and other children. I cannot discover any thing peculiarly active in this fruit, in the condition in which it is employed as an anthelmintic. Perhaps, it operates solely by virtue of a laxative property.

I CONTINUE to use and experience the good effects of the *Melia Azedarach*†. I believe this is one of the most valuable anthelmintics, that has hitherto been discovered. Of late, the dried berries have been advantageously employed as an anthelmintic, in Carolina. With a view to this effect, children are permitted to eat the berries, without any particular regard to the dose. They are, by some, deemed as efficacious as the bark of the tree. I have employed the powdered leaves, but am not yet prepared to offer a positive report concerning their comparative powers. On the subject of the anthelmintic and other properties of the *Melia*, the reader will do well to consult my friend, Dr. G. Duvall's Inaugural Dissertation‡.

* See Part First, p. 11.

† See Part First, p. 40, 64, 65, 66.

‡ An Experimental Botanico-Medical Essay on the *Melia Azedarach* of Linnæus. By Grafton Duvall, of Maryland. Philadelphia: 1802.

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* These are two distinct Courses of Lectures.

